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DEDICATION.

This Work

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Respectfully Dedicated

to my revered grandfather

Bangalore Suryanarain Rao, B.A., M.R.A.S., Etc.

Editor of the Astrological Magazine and Author
of more than seventy works including the
famous "History of Vijayanagar—The
Never-to-be Forgotten Empire", as a
token of gratitude for his instruc-
tions to me in Astrology and
Astronomy, and in appre-
ciation of his profound
scholarship, by his
loving grand-
son.

B. V. RAMAN,

The Author.

CONTENTS

	Page.
FOREWORD by Prof. B. Suryanarain Rao	... xi
PREFACE	... xv
INTRODUCTION by Dr. V. V. Ramana Sastri	... xix
AUTHOR'S INTRODUCTION	... xxi

CHAPTER I.

THE ZODIAC AND THE PLANETARY SYSTEM

Article.

1. The Zodiac	...	...	1
2. The Ecliptic	...	...	1
3. Signs of the Zodiac	...	...	1
4. The Constellations	...	...	2
5. The Planetary System	...	...	2
6. Rotation and Revolution	...	...	3
7. Velocities of Planets	...	...	4
8. Retrogression and Acceleration	...	...	5

CHAPTER II.—PRELIMINARIES EXPLAINED

9. Rasis and their Extent	...	...	7
10. Nakshatras and their Extent	...	...	7
11. Movable Signs	...	...	10
12. Fixed Signs	...	...	10
13. Common Signs	...	...	10
14. Odd Signs	...	...	10
15. Even Signs	...	...	10
16. Signs of Long Ascension	...	...	10
17. Signs of Short Ascension	...	...	10
18. Sirodaya Signs	...	...	10
19. Prustodaya Signs	...	...	11
20. Quadrants	...	...	11
21. Trines	...	...	11

Article.		Page.
22. Succedent Houses	...	11
23. Cadent Houses	...	11
24. Oopachayas	...	11
25. Planetary Ownerships	...	11
25A. Exaltations	...	12
26. Debilitations	...	12
27. Good and Evil Planets	...	12
28. Sexes	...	12
29. Moola Thrikonas...	...	12
30. Planetary Relations	...	12
31. Karakas	...	14
32. Bhavas	...	14
33. The Astrological Measure	...	16

ASTRONOMICAL TERMINOLOGY

34. The Axis and Poles of the Earth	...	16
35. The Earth's Equator	...	16
36. The Latitude	...	17
37. The Longitude	...	17
38. The Celestial Equator	...	17
39. The Celestial Latitude	...	17
40. The Declination	...	17

CHAPTER III.—THE AYANAMSA

41. The Equinoctial Points	...	18
42. Precession of the Equinoxes	...	18
43. Movable and Fixed Zodiacs	...	18
44. The Sayana and Nirayana Systems	...	19
45. The Ayanamsa	...	19
46. Varahamihira's Observations	...	19
47. Exact Date of Coincidence not known	...	20
48. Use of Ayanamsa	...	21
49. Determination of (Approximate) Ayanamsa	...	22

CHAPTER IV.—RASI MANAS

Article.			Page.
50.	Geographic and Geocentric Latitudes	...	24
51.	Rasimanas	...	24
52.	Charakhandas	...	25
53.	Rising periods on the Equator	...	26
54.	Determination of Rasimanas	...	26
55.	Duration of Signs in S. Latitudes	...	29

CHAPTER V.—SUNRISE AND SUNSET

56.	Apparent Time of Rising and Setting	...	30
57.	Apparent Noon	...	30
58.	Ahas and Ratri	...	31
59.	Hindu method of Determination of Sunrise and Sunset	...	32
60.	Modern method of Determination of Apparent Time of Sunrise and Sunset	...	37
61.	Equation of Time	...	39
62.	Method of Determination of Equation of Time	...	40
63.	Mean Time of Sunrise and Sunset	...	42
64.	Easy method for finding the Mean Time of Sunrise and Sunset	...	43

CHAPTER VI.

MEASURE AND CONVERSION OF TIME

65.	Hindu Chronology	...	45
66.	Local Mean Time	...	47
67.	Standard Time	...	48
68.	The Standard Horoscope	...	49
69.	Suryodayadi Jananakala Ghatikaha	...	50

CHAPTER VII.—GRAHA SPHUTAS

70.	Hindu Almanac...	...	52
71.	Method of Making Graha Sphutas	...	52
72.	Nirayana Longitudes of Planets	...	56

CHAPTER VIII.—LAGNA SPHUTA

Article.		Page.	
73.	Lagna or Ascendant	...	57
74.	Solar Months	...	57
75.	Determination of Lagna	...	58
76.	Rasi Kundali	...	60

CHAPTER IX.—DASAMSA BHAVA SPHUTA

(Tenth House or the Mid-heaven.)

77.	The Dasama Bhava	...	61
78.	The Rasi Chakra	...	61
79.	Erroneous Conception of Bhava Chakra...	...	62
80.	Bhaskara's Definition	...	62
81.	Bhava Chakra	...	63
82.	Method of Determination of Mid-heaven...	...	63

CHAPTER X.—BHAVA SPHUTA

83.	Bhava or House	...	68
84.	Bhava Madhya	...	68
85.	Kendra Bhavas	...	68
86.	Determination of Kendra Bhavas	...	68
87.	Non-angular Houses	...	69
88.	Determination of Bhava Madhyas of Non-angular Houses	...	69
89.	Bhava Sandhis	...	72
90.	Determination of Bhava Sandhis	...	73
91.	Poorva and Uttara Bhagas of Bhavas	...	74

CHAPTER XI.

HOROSCOPE ACCORDING TO THE WESTERN
METHOD AND ITS REDUCTION TO
THE HINDU

92.	General Observations	...	76
93.	Hindu and Western Methods	...	76
94.	The Modern Ephemeris	...	77

Article.		Page.
95.	Table of Houses ...	77
96.	Local Mean Time of Birth ...	78
97.	Greenwich Mean Time of Birth	78
98.	Greenwich Mean Time Interval of Birth ...	79
99.	Daily Motions of Planets ...	79
100.	Hindu Nirayana Longitudes of Planets ...	80
101.	The Sidereal Time at Birth ...	83
102.	R.A.M.C. at Birth ...	84
103.	Sayana Longitudes of Angular Houses ...	84
104.	Rasi Kundali ...	88

CHAPTER XII.—THE SHODASAVARGAS

105.	The Vargas ...	89
106.	The Shodasavargas	89
107.	The Shadvargas ...	90
108.	The Saptavargas	90
109.	The Dasavargas	90
110.	The Shodasavargas	90
111.	Rasi ...	91
112.	Hora ...	91
113.	Drekkana ...	92
114.	Chaturthamsa ...	93
115.	Panchamsa ...	94
116.	Shashtamsa ...	94
117.	Sapthamsa ...	94
118.	Ashtamsa ...	95
119.	Navamsa ...	94
120.	Navamsas and Nakshatra Padas	98
121.	Navamsa Chakra ...	100
122.	Dasamsa ...	100
123.	Ekadasamsa ...	101
124.	Dwadasamsa ...	101
125.	Shodasamsa ...	101

Article.		Page.
126. Thrimamsa	...	102
127. Shashtiamsa	...	103
128. Ghatikamsa	...	104
129. General Remarks	...	104
130. Interpretation of Sapta Varga Table	...	106
TABLE I.—Charakhandas (1° to 60°N. Lat.)	...	107
TABLE II.—Terrestrial Longitudes and Latitudes		109
TABLE III.—Equation of Time.	...	116
TABLE IV.—Standard Times	...	117
AN INDEX OF TECHNICAL TERMS	...	119



B. Suryanarayana Row

FOREWORD

BY

Bangalore Suryanarain Rao, B.A., M.R.A.S., F.R.H.S., etc.,
Editor, Astrological Magazine.

It gives me great pleasure to write a few words by way of a Foreword.

The writer of this work Dr. B. V. Raman, is my eldest son's eldest son, *i.e.*, my grandson. I was on the look-out for a competent successor to the special line of researches, *viz.*, astronomico-astrology in which I have spent the major portion of my active life and have found my grandson, a competent youth to take up my work.

He has made an intelligent study of mathematical and predictive astrology and has been able to compose some treatises on this important subject.

The necessity of accurate mathematical knowledge is placed beyond a question; and no astrologer of any pretensions, can ever hope to become a successful predictor, unless he is competent in his astronomical knowledge of correctly casting the horoscope and finding out the various sources of strength and weakness of the Planets and the Bhavas.

This work, I am proud to say has been

done by my grandson, with considerable skill and ability. He has put his ideas in a flowing, convincing and easy style and the illustrations he has given, will be found to be of immense use to the readers.

I have been, during the last 60 years, of my activities in the astrological line, dealing more or less with the judicial portion of astrology, and did not give as much attention as the subject of mathematical calculations demanded. Probably fate ordained, that, while I have fully treated in my own inimicable style, the predictive portions of astrology, the astronomical portions have been reserved to be elaborated by my own grandson, adding a feather to the line of my succession.

As this book deals with the essential aspects of Mathematical Astrology, necessary for correct computation of horoscopes, according to the Hindu system, the selection of the name as "A Manual of Hindu Astrology" is quite appropriate.

There has been a very great demand for such a book and I am proud to say that my grandson Dr. B. V. Raman has supplied the want with credit to himself.

This book is written with a view to help all those who are attempting to grasp the fundamental principles of Hindu Astronomico-astrology.

To write a book on mathematical portion requires patience, diligence and devotion, all of which, my grandson, has displayed in a commendable manner.

I pray to God earnestly that he may live to a long age, as God has been pleased to give me longevity, and do as much service to the public as possible. Blessing him with all my heart and praying to God to make him successful and prosperous:—

B. Suryanarain Row.

BANGALORE, }
5th October 1935. }

(In his 80th year)

—

PREFACE

Last year I wrote a comprehensive book entitled "A Text Book of Hindu Astrology", the major portion of which has been devoted to the exposition of the predictive branch of the science. But later on, I realised the need for a book devoted to the mathematical side of the subject too, by the constant pressure brought to bear upon me by students of astrology. In casting horoscopes according to approved rules of Hindu Astrology, nothing but a series of mathematical calculations are involved; and hence the present manual is more or less devoted to the exposition of the important and essential principles of Hindu Mathematical Astrology. The mathematical portions dealt with are of a very elementary nature. It is hoped the present work will supply a long-felt want. All necessary and superfluous information constantly employed by writers on Mathematical Astrology, which are not only cumbersome but also unimportant from the point of view of correct predictions, has been omitted. Ignorance of even the elementary principles of Mathematical Astrology is sure to lead one to the obvious misconception of the fundamental postulates of the judicial system and, at the same time

too much indulgence in mathematics alone, is equally harmful as completely atrophying one's judgment faculty and power of induction. Hence to cast and read a horoscope, a moderate knowledge of Mathematical Astrology would be simply invaluable.

I propose to issue two other books on the "Strengths of Planets" and "Longevity" so that these three books contain all the information necessary to enable the student to prepare a suitable ground for venturing predictions. This book deals with such aspects as the determination of the longitudes of planets, house-cusps, sunrise and sunset and other information essential for constructing a horoscope. "The strength of planets" and "Ayurdaya" deal with the planetary relations, shad-balas, periods and sub-periods and longevity.

A separate chapter, exclusively devoted to describing the method of casting the horoscope, etc., according to the western system and its reduction to the Hindu, has been included and this is sure to enhance the value of the book by making it accessible to the Eastern and Western students alike.

The book is intended both for the beginner and the advanced.

The book may have its own defects,

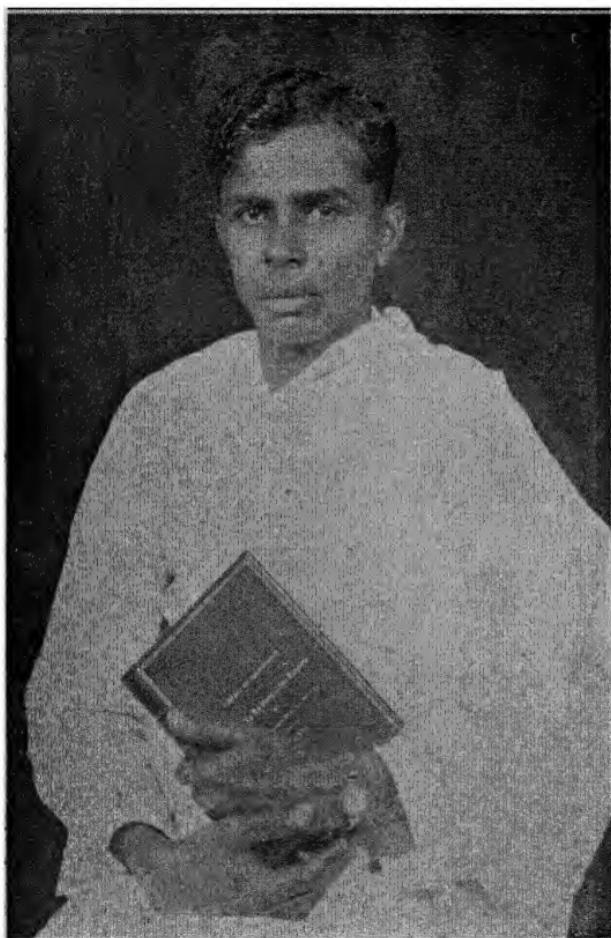
and any suggestions for its improvement will be gratefully appreciated.

Original books on Varshaphal (Annual reading of horoscopes) based on Tajaka, Kala-chakra Dasas, etc., are in the course of preparation and they will be released for publication in due course, for the benefit of the astrological public. I am specially indebted to my grandfather Prof. B. Suryanarain Rao, to whom this work is dedicated for his valuable instructions to me in Astrology.

I have relied to some extent on the English translation of Sripathi Paddhati by Mr. V. S. Subrahmanya Sastri for information on Dasamabhava Sphuta and my thanks are due to him. I cannot but appreciate the labours of my wife Srimathi Rajamma Raman for re-writing the entire Manuscript and making it suitable for the press. My thanks are also due to Dr. M. C. Srikanta Pandit for having financed the publication, and to Mr. Mir Abdul Huq and the staff of Modi Power Printing Works for evincing special interest in printing the work.

I feel certain that my humble endeavours in expounding Astrology will be appreciated by all well-wishers of knowledge and understanding.

•BETTAHALSOOR,
BANGALORE, }
5th October 1935. } *Br. Raman*



B. V. Raman

The Author

AN INTRODUCTION

BY

Jyothirbhushan Dr. V. V. Ramana Sastrin, M.A., Ph.D., etc.

I am asked to write a few words by way of introduction, which I do with extreme pleasure, even in the face of poorly health.

The present volume is devoted to the astronomical basis of Hindu Astrology, not without occasional side-lights on the theory of Western Astrology, but the manner in which the relevant findings are marshalled, and the methods, expounded, will not fail to hold the attention of the reader.

To the beginner with the merest acquaintance with the astronomical preliminaries, the presentation is bound to make a fascinating appeal, but to the trained student, the book as a whole, cannot but serve the purpose of a stimulating repertory of the leading facts or concepts of Astrological Mathematics.

The Author, Dr. B. V. Raman has already made his mark in the astrological world, and bids fair to hold his own in the future, as a first-rate expounder of Hindu Astrology. He is none other than the grandson of Prof. B. Suryanarain Rao, the venerable doyen of Indian Astrologers of repute, whose personal teaching

and example have gone not a little to make of the grandson what he is.

This book is intended to be the first of a series, planned to embrace the several departments of astrology, one after another, and I sincerely bid him God-speed in the successful materialisation of his plans.

VEDARANYAM,
TANJORE,
} 25th Sept. 1935.

(Sd.) V. V. RAMANAN.



AUTHOR'S INTRODUCTION

The mathematical basis of astrology is so precise and exact that even its greatest enemies cannot but be convinced of its scientific nature. The noble art of predictions assumes a fair amount of knowledge in the mathematical part of astrology. It cannot be denied, that such an ability, imposes a great strain on the limited mental acumen of the average astrologer, that his pretensions to make correct predictions are really baseless. It would be better to draw a distinction, between mathematical astrology and astronomy. By the former, we mean, the relation of mathematics to astrology in so far as it is concerned with the correct determination of the longitudes of planets on the basis of reliable ephemerides or almanacs, cusps of the various houses, the different kinds of Balas or Sources of strength and weakness of each planet and house, and such other details which are ascertainable with the aid of mathematics so that a sound basis for making correct predictions may be obtained. In other words, mathematical astrology deals with nothing but correct casting of horoscopes. And we classify the methods of computing the longitudes of planets independently, determining the periods of eclipses and

such other details as the measurement of the dimensions of the various celestial bodies and their internal and external peculiarities, etc., under astronomy. The ancient Hindus always regarded astrology and astronomy as synonymous so that a bad astronomer was also considered a bad astrologer. In fact the qualifications laid down by great and illustrious writers like Varahamihira and Bhaskaracharya are so rigorous, that, we fear, that none of us to-day, would be deemed to be called an astrologer at all. Bhaskara stresses on the need of a clear knowledge of spherical astronomy, for one, who wishes to be an astrologer and a comprehension of the doctrine of spherical projection and allied theories for locating the true positions of planets, etc. But for our purpose, we shall maintain this distinction, we have called attention to above, in regard to mathematical astrology and astronomy; and deem that a fair acquaintance with the principles of mathematical astrology are absolutely essential for successful predictions.

A noteworthy sign of this century seems to be a general awakening in the minds of the educated classes to institute a scientific inquiry into ancient subjects like astrology and astronomy. It is, however, deplorable to note that, in their over-enthusiasm to benefit the cause

of the science, many of the modern English Educated Hindus of to-day are adopting an undesirable attitude towards Hindu astronomical calculations in rejecting them altogether as incorrect or inconsistent and replacing them entirely by modern ones, as being quite accurate and precise. The arguments advanced by them, in favour of such a theory, are generally unsound and cannot stand the test of actual demonstration. Are we to reject the Hindu astronomical calculations formulated and adopted by such celebrated exponents of the celestial science as Varahamihira, Bhaskara, Sripathi and others, because they seem to clash with modern ones, ~~which~~ accept the ancient astrological principles? A Varahamihira or a Kalidasa, who has bequeathed to us such master-pieces as Brihat Jataka and Uttara Kalamrita could not have been so ignorant or indifferent as to give room for such fallacies, inconsistencies and errors which we are trying to find out in their writings. It would be the height of folly and absurdity to estimate their conclusions in matters of astronomy and astrology in the light of our own developments or achievements in those branches of knowledge. Modern decisions and conclusions cannot be taken as criteria for judging the accuracy or otherwise of the ancient Hindu Astronomers. The extreme accuracy and

precision to which we lay claim are often times questionable. It is true that no satisfactory agreement could be found between the writings of any two people even, in ancient books. But what of it? Do all modern calculations tally with each other? Certainly not. Take for instance the measurement of terrestrial latitudes. Each reference book, an authority in its own way, differs decidedly from the other. Bangalore is located on $13^{\circ} 12' 57''$ and $12^{\circ} 58' N.$ Lat; which of these is correct? Therefore it is useless to reject the ancient methods of calculations completely, because they clash with ours and replace them entirely by those of modern times.

Most of the theories of to-day are simply tentative; they have not, as yet, been established. The statements of some of the astronomers are really ludicrous and excite sympathy in the hearts of sober men for such perverted views. Modern calculations alone cannot be accepted as correct or accurate (for astrological purposes) and the ancient ones rejected. Moreover the ancient Hindu astronomers dreaded secular interference in matters of astronomy for *astrological purposes*.

The ancient Maharishis were past masters of the first magnitude in almost all branches of knowledge. That they discovered many

phenomena by mere observation alone cannot be vouchsafed. The plane of observation employed by them was certainly quite different from that of the modern scientists. The art of Yoga is peculiar to them. Not being satisfied with the nature of the phenomena revealed by glasses and other material objects, they dived deep into the unfathomable depths of Yoga by means of which they were able to see things in their reality, face to face. The first *sutra* in the *Grahanirnaya Prakarana* of the *Bhoutika Sutras* is "*Darpanemithya Vadaha*," meaning that objects at a distance, viewed through glasses, always present forms, which really do not represent their true state or nature. This clearly suggests, that to get at truth, so far as the celestial and distant objects are concerned, we must view them by something other than glasses, as there are many media between them and the earth, whose refracting and dispersing powers, we do not know much about. Thus they had the gift of Yoga, the fragments of which we see even unto this day, which helped them to a great extent in their expeditions in unveiling the mysteries surrounding the phenomenon of the celestial bodies.

- There may be still other causes for the existence of differences between modern and ancient astronomical observations. For instance

the equation of the Sun's centre according to the Indian tables is $2^{\circ} 10\frac{1}{2}'$ whereas according to modern observations it is only $1^{\circ} 55\frac{1}{2}'$. Is the first figure wrong because it differs from the second ? It cannot be ; for " the eccentricity of the solar orbit on which the equation just mentioned depends was greater in former ages than it is at the present time because, of the consequence of natural disturbances of planets." Hindu calculations require consideration of Hindu figures and tables and we have to consider Hindu methods alone in matters of Hindu Astrology. Prof. Wilson observes that " The Science of astronomy at present exhibits many proofs of accurate observation and deduction, highly creditable to the science of the Hindu Astronomers." Take for instance eclipses. The Hindu method yields as correct results as the modern method.

The sciences of Hindu Astronomy and Astrology have got into disrepute by the ignorance of the fake and quack astrologers and astronomers, whose mercenary nature make them impervious and indifferent to the grave responsibilities that lie on their heads, and such an attitude of these people is directly traceable to the lethargic mentality of many of our indolent Rajas and Maharajas who, while spending immense sums on useless and

chimical purposes, are completely deaf towards rehabilitating such useful sciences as astrology and astronomy.

The perfection of predictive astrology among the ancient Hindus was really marvellous; and to-day, we have lost that power. Even with sound mathematical basis, our predictions are generally vague and indefinite—except for a few, made by the real experts in this science. Is it because, our inductive faculty is marred by the too much precision we aim at, or are we on the wrong tract. Are we not wasting much of our precious time by entering into profitless discussions and controversies as regards house division, ascribing rulerships to the so called newly discovered planets, finding the rationale of the significations of the different houses of the Zodiac, etc. The greater portion of our time must be devoted to the practical study of astrology. This requires a moderate knowledge of astrological calculations. For instance, in determining Ayurdaya, Maraka Grahas (death inflicting planets) and the time of death, we should ascertain the relative sources of strength and weakness of the different planets. This requires a fair knowledge of Shadbalas. And with our present knowledge in the predictive art, we do not require to be so precise as to find out ".000067" of an Arc. We had better

maintain what can be termed "minute precision", and then adopt "second precision", after we have attained proficiency in the art of predictions consistent with our present precision in calculations.

Bearing this in mind, if the reader goes through this volume, without any bias or prepossession, he will really find much useful information presented in quite an intelligible manner. Throughout the book, in the examples worked out, fractions less than half a Ghati or 30" of Arc have been rejected. If the reader is patient enough he can consider the minutest divisions and maintain the degree of accuracy he wants.

In the determination of Madhya Lagna (10th Bhava), the Hindus do not consider the Sidereal Time of Birth. Instead, the Sun's Sayana Longitude at birth moment and the interval between meridian-distance are taken and the Dasamabhava Longitude determined by considering the Sidereal Time of the ascension of the Rasimanas on the equator according to the prescribed rules. Besides, the Bhojya and Bhuktha portions of a sign are found out by the application of rule of three assuming that equal arcs ascend at equal times. These two are considered, by some recent writers as fallacies or errors. But they are not fallacies at all astrologically because,

perhaps the ancients thought, that it would not make much difference, whether the ascension of Arc was calculated arithmetically or by more refined modern methods *for astrological purposes*. They had their own reasons which remain inexplicable to assume so many things, which look controvertible to-day. We have not the slightest justifiable ground to label them as incorrect and eulogise our own conclusions as eminently correct. We have lost the power of Yoga, we cannot see things face to face by physical aids. And hence we can neither deprecate the one nor appreciate the other. Each has its own faults and perfections and we must as far as possible adopt the Hindu method of calculations for applying Hindu astrological principles.

BETTAHALSOOR,
BANGALORE,
5th October 1935. } Br. Rama

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A

MANUAL OF HINDU ASTROLOGY

(CORRECT CASTING OF HOROSCOPES)

By

Dr. B. V. RAMAN

CHAPTER I.

THE ZODIAC AND THE PLANETARY SYSTEM

1. **The Zodiac.**—It is a broad band or belt in the heavens extending 9 degrees on either side of the ecliptic, and known to the Hindus as Bhachakra or the Circle of Light. It is a circle and as such it knows no beginning or end. In order to measure the distance, an arbitrary point is established, which is called the first point of Aries. The zodiac revolves once in a day on its axis, from east to west.

2. **The Ecliptic.**—The ecliptic is the Sun's path. This is known as *apamandala* or *Ravi marga* in sanskrit. It passes exactly through the centre of the zodiac longitudinally.

3. **The Signs of the Zodiac.**—The ecliptic is divided into twelve equal compartments, the signs of the zodiac, each being thirty degrees in

extent. Each sign has its own peculiar qualities attributed to it by the ancient Maharishis, after careful and profound observation and meditation. As already observed above, the commencement of the zodiac is reckoned from the first point of Aries. Each degree is divided into sixty minutes and each minute is further subdivided into sixty seconds, so that, the total extent of the zodiac is 21,600 minutes or 129,600 seconds.

4. **The Constellations.**—The ecliptic is marked by twenty-seven constellations or Nakshatras, often called lunar mansions, because the Moon is brought into special connection with them, as traversing twenty-seven constellations and making a complete round of the ecliptic in a lunar month. Each constellation contains four padas or quarters and each quarter is equal to $3\frac{1}{2}$ ° of the celestial arc (*rekha*). In other words the whole zodiac consists of 108 padas so that each constellation measures 13° 20' of arc. The Rasis and the Nakshatras are both reckoned from the same point, *viz.*, the zero degree of longitude of Mesha (Aries), *i.e.*, the initial point of Mesha* (See Chap. II) is the first point of Aswini.

5. **The Planetary System.**—The planetary system otherwise known as the solar system,

* See Varaha Mihira's *Brihat Jataka*—English translation by Prof. B. Suryanarain Rao, B.A., M.R.A.S.

headed by the most glorious Sun—the *Jagat-chakshu*—consists of seven important planets (including the Sun himself). All the planets, save the central luminary, are held by the gravitation of the Sun and they all revolve round him, the period of revolution varying with reference to each planet. Along with these are included Rahu and Kethu—considered as *Aprakashaka grahas* or shadowy planets; and moreover their importance does not seem to have been stressed upon by writers on Mathematical Astrology, for they partake of the characteristics of the signs which they occupy, whilst later writers on Judicial Astrology, invariably recognise their influences in the analysis of a horoscope.

Saturn is the most distant planet from the earth; Jupiter, Mars, the Sun, Venus, Mercury and the Moon, come next in the order of their distance.*

6. Rotation and Revolution.—These planetary orbs, which the ancients recognised as having powerful influences on the terrestrial phenomena, perform the double function of not only rotating on their own axis (*Brahmana*) from west to east, but also revolving round the Sun (*Bhagana*). The latter is comprehended in the astronomical nomenclature as the orbital

* See *Suryasiddhanta*.

revolution of the earth and the planets, which for the sake of simplicity, we have preferred to call as revolution.

7. Velocities of Planets.—Each planet has its own rate of motion or velocity depending upon its nearness to or distance from the earth. For instance, the Moon is our nearest planet and consequently she has a very swift motion. She travels round the zodiac once in 30 lunar days ; whereas, Saturn who is the most distant from us, has got the slowest motion and accordingly performs one revolution round the ecliptic once in thirty years. The planets do not maintain a uniform rate of movement, for various causes. The following are the approximate periods taken by each planet to make a circuit round the zodiac.

The Sun moves at the rate of roughly one degree a day or $365\frac{1}{4}$ days for one complete revolution. The Moon takes 27 days 7 hours and odd for a similar circuit. Mars takes 18 months for one revolution. Mercury requires a similar period as the Sun but his closeness to the Sun makes Mercury rather unsteady with the result that he often takes 27 days to pass through one sign. Jupiter requires roughly twelve years for a circuit. Venus has more or less the same velocity as the Sun. And Saturn moves for thirty months in a sign. Rahu and Kethu take

18 months each in a sign or 18 years for a complete revolution. All the planets have *savya* or direct motion, while Rahu and Kethu have *Apasavya* gathi, *i.e.*, they move from east to west.

THE VELOCITIES OF PLANETS.

		Degree	Minute	Second	Para	Paratpara	Tatpara
Sun	per day	0	59	8	10	10	24
Moon	..	13	10	34	52	3	49
Mars	..	0	31	26	28	11	9
Mercury	..	1	5	32	20	41	51
Jupiter	..	0	4	59	8	48	35
Venus	..	1	36	7	43	37	15
Saturn	..	0	2	0	22	53	25
				60 Tatparas	=	1 Paratpara.	
				60 Paratparas	=	1 Para.	
				60 Paras	=	1 Second	

The above information is culled out from an ancient astronomical work and the reader is referred to more advanced works on Astronomy for fuller and more detailed information.

8. Retrogression and Acceleration.— When the distance of any one planet from the Sun exceeds a particular limit, it becomes retrograde, *i.e.*, when the planet goes from perihelion (the point in a planet's orbit nearest to the Sun) to aphelion (the part of a planet's orbit most distant from the Sun) as it recedes from the Sun, it gradually loses the power of the Sun's gravitation and consequently,

to gain it, it retrogrades ; and when the planet comes from aphelion to perihelion, nearer and nearer to the Sun the gravitation of the Sun grows more and more powerful, so that the velocity of the planet is accelerated, *i.e.*, the state of *Athichara* is entered into. All the planets are subject to retrogression and acceleration excepting the Sun and the Moon, let alone the *Aprakashaka grahas*. Hence we find that there is no uniformity in the velocities of planets, that they are different at different parts of the orbits and that the planetary orbits are elliptical. The *vakra*, *athichara*, etc., are caused, according to Surya Siddhanta, by the invisible forces *Seegrochcha*, *Mandochcha*, and *Patha*.

The importance of *vakra*, etc., of planets, so far as it is necessary for astrological purposes will be dealt with in its proper place. Those who wish to soar into the higher regions of astronomy will do well to study such celebrated works as Surya Siddhanta, Panchasiddhantika, etc., of illustrious authors of yore, in whose luminous expositions of this celestial science, the inquiring mind is sure to find much more than what is sought for.

CHAPTER II.

PRELIMINARIES EXPLAINED

9. **Rasis and their Extent.—**

Sign.	Its English equivalent.	Its Symbol.	Its Extent.
1. Mesha	Aries	♈	0° 30°
2. Vrishabha	Taurus	♉	30 60
3. Mithuna	Gemini	♊	60 90
4. Kataka	Cancer	♋	90 120
5. Simha	Leo	♌	120 150
6. Kanya	Virgo	♍	150 180
7. Thula	Libra	♎	180 210
8. Vrischika	Scorpio	♏	210 240
9. Dhanus	Sagittarius	♐	240 270
10. Makara	Capricornus	♑	270 300
11. Kumbha	Aquarius	♒	300 330
12. Meena	Pisces	♓	330 360

10. **Nakshatras and their Extent.—**

No.	Rasi. (Sign)	Nakshatra. (Constella- tion)	Pada. (Quarter)	Space on the ecliptic from 0° Aries
1.	Aries	1. Aswini	4	13° 20'
		2. Bharani	4	26 40
		3. Krithika	1	30 00

No.	Rasi. (Sign)	Nakshatra. (Constella- tion)	Pada. (Quarter)	Space on the ecliptic from 0° Aries
2.	Taurus	Krithika	3	40° 0'
		4. Rohini	4	53 20
		5. Mrigasira	2	60 0
3.	Gemini	Mrigasira	2	66 40
		6. Aridra	4	80 0
		7. Punarvasu	3	90 0
4.	Cancer	Punarvasu	1	93 20
		8. Pushyami	4	106 40
		9. Aslesha	4	120 0
5.	Leo	10. Makha	4	133 20
		11. Pubba	4	146 40
		12. Uttara	1	150 0
6.	Virgo	Uttara	3	163 0
		13. Hasta	4	173 20
		14. Chitta	2	180 0
7.	Libra	Chitta	2	186 40
		15. Swathi	4	200 0
		16. Vishaka	3	210 0
8.	Scorpio	Vishaka	1	213 20
		17. Anuradha	4	226 40
		18. Jyesta	4	240 0
9.	Sagittarius			
		19. Moola	4	253 20
		20. Poorvashada	4	266 40
		21. Uttarashada	1	270 0

No.	Rasi. (Sign)	Nakshatra. (Constella- tion)	Pada. (Quarter)	Space on the ecliptic from 0° Aries
10.	Capricornus	Uttarashada	3	210° 0'
		22. Sravana	4	293 20
		23. Dhanishta	2	300 0
11.	Aquarius	Dhanishta	2	306 40
		24. Satabhisha	4	320 0
		25. Poorva- bhadra	3	330 0
12.	Pisces.	Poorva- bhadra	1	333 20
		26. Uttara- bhadra	4	346 40
		27. Revathi	4	360 0

The above table may be interpreted thus. It will be seen that there are 27 constellations comprising the 12 signs. For instance, take Aries. You will find that 4 quarters of Aswini ($13^{\circ} 20'$), 4 of Bharani ($13^{\circ} 20'$) and 1 of ($3^{\circ} 20'$) Krithika—on the whole 9 quarters constitute it. Again, the remaining 3 of Krithika (10°), the 4 of Rohini ($13^{\circ} 20'$) and 2 ($6^{\circ} 40'$) of Mrigasira make up Taurus and so on. What use this table will be of, the reader will realise after he has gone through some more pages. For the present suffice it to say that he must be quite familiar with it in order

to understand the information set forth in the subsequent chapters.

Note.—In the characteristics of the signs and planets which I am giving below, such information as has a direct bearing upon and involved in the mathematical calculations, has been included. All other details necessary for predictions, which can be gathered from any astrological work has been scrupulously omitted.

11. **Movable Signs.**—Aries, Cancer, Libra and Capricorn.

12. **Fixed Signs.**—Taurus, Leo, Scorpio and Aquarius.

13. **Common Signs.** — Gemini, Virgo, Sagittarius and Pisces.

14. **Odd Signs.**—Aries, Gemini, Leo, Libra, Sagittarius and Aquarius.

15. **Even Signs.**—Taurus, Cancer, Virgo, Scorpio, Capricorn and Pisces.

16. **Signs of Long Ascension.**—Cancer, Leo, Virgo, Libra, Scorpio and Sagittarius.

17. **Signs of Short Ascension.**—Capricornus, Aquarius, Pisces, Aries, Taurus and Gemini.

18. **Sirodaya Signs.**—(Rising by Head) Gemini, Leo, Virgo, Libra, Scorpio and Aquarius.

19. **Prustodaya Signs.**—(Rising by hinder part) Aries, Taurus, Cancer, Sagittarius and Capricorn.

The Sirodaya signs excepting Gemini are powerful during the day. The Prustodaya signs including Gemini are powerful during the night. The former are also called the Nocturnal signs and the latter the Diurnal signs. Pisces forms a combination of the two and is called Ubhayodaya Rasi.

20. **Quadrants.**—Kendras—1, 4, 7 and 10.
21. **Trines.**—Trikonas—1, 5 and 9.
22. **Succedent Houses.**—Panaparas—2, 5, 8 and 11.
23. **Cadent Houses.**—Apoklimas—3, 6, 9 and 12 (9th being a trikona must be omitted).
24. **Oopachayas.**—3, 6, 10 and 11.
25. **Planetary Ownerships.**—Aries and Scorpio are ruled by Mars; Taurus and Libra by Venus; Gemini and Virgo by Mercury; Cancer by the Moon; Leo by the Sun; Sagittarius and Pisces by Jupiter and Capricorn and Aquarius by Saturn.
25. **Exaltations.**—The Sun has his deep exaltation in the 10th degree of Aries; Moon 3rd of Taurus; Mars 28th of Capricorn; Mercury 15th of Virgo; Jupiter 5th of Cancer; Venus 27th of Pisces and Saturn 20th of Libra.

26. Debilitations.—The 7th house or the 180th degree from the place of exaltation is the place of debilitation or fall. The Sun is debilitated in the 10th degree of Libra, the Moon 3rd of Scorpio and so on.

27. Good and Evil Planets.—Jupiter, Venus, Full Moon and well associated Mercury are good planets and New Moon, badly associated Mercury, the Sun, Saturn and Mars are evil planets. From the 10th bright half of the Lunar month the Moon is full. He is weak from the 10th of the dark half.

28. Sexes.—Jupiter, Mars and the Sun are males: Venus and the Moon are females: and Mercury and Saturn are eunuchs. "

29. Moola Thrikonas.—Sun's Moola Thrikona is Leo (0° - 20°); Moon—Taurus (4° - 30°); Mercury—Virgo (16° - 20°); Jupiter—Sagittarius (0° - 13°); Mars—Aries (0° - 18°); Venus—Libra (0° - 10°) and Saturn—Aquarius (0° - 20°).

30. Planetary Relations.—By friendship we mean that the rays of the one planet will be intensified by those of the other, declared as his friend, while the same rays will be counteracted by a planet who is an enemy.

Friendship will be both permanent (*Naisargika*) and temporary (*Tatkalika*). (See my "Potencies of Planets and Bhavas" for Tatkalika friendship).

PERMANENT FRIENDSHIP.

Planets. (Grahas)	Friends. (Mitras)	Neutrals. (Samas)	Enemies. (Satrus)
Sun	.... Moon, Mars Jupiter.	Mercury.	Saturn, Venus.
Moon	.... Sun, Mercury.	Mars, Jupiter, Saturn, Venus.	None.
Mars	.... Jupiter, Moon, Sun.	Saturn, Venus.	Mercury.
Mercury	.... Sun, Venus.	Saturn, Mars, Jupiter.	Moon.
Jupiter	.... Sun, Moon, Mars.	Saturn.	Mercury, Venus.
Venus	.... Mercury, Saturn.	Mars, Jupiter.	Moon, Sun.
Saturn	.... Venus, Mercury.	Jupiter.	Mars, Moon, Sun.

The practical applicability of some of these characteristics of planets and signs will be

made perfectly clear in chapters dealing with the calculation of Shadbalas, Ayurdaya, etc.

31. **Karakas.**—Each planet is supposed to be the karaka of certain events in life. Many function as producing, rather promoting the incidents ascribed to them.

Name.	English equivalent.	Symbol.	Karaka of	Promoter of
Surya	Sun	☉	Pitru	Father
Chandra	Moon	☽	Matru	Mother
Angaraka	Mars	♂	Bhratru	Brother
Budha	Mercury	☿	Karma	Profession
Guru	Jupiter	♃	Putra	Children
Sukra	Venus	♀	Kalatra	Wife or Husband
Sani	Saturn	♄	Ayus	Longevity
Rahu	Dragon's Head	♅	Mathamaha	Maternal relations
Kethu	Dragon's Tail	♆	Pithamaha	Paternal relations

32. **Bhavas.**—These correspond roughly to the “Houses” of Western Astrology. The most powerful point in a Bhava is its Madhya Bhaga or mid-point whereas the first point is the most powerful in a “Western House.” There are twelve Bhavas and each controls rather signifies certain important events and incidents.

Bhava.	House.	Signification.
(1) Thanubhava	First House	build, body, appearance.
(2) Dhanabhava	Second House	family, source of death, property, vision.
(3) Bhratru Bhava	Third House	intelligence, brothers, sisters.
(4) Sukha Bhava	Fourth House	vehicles, general happiness, education, mother.
(5) Putra Bhava	Fifth House	fame, children.
(6) Satru Bhava	Sixth House	debts, diseases, misery, enemies.
(7) Kalatra Bhava	Seventh House	wife or husband, death, tact.
(8) Ayurbhava	Eighth House	longevity, gifts.
(9) Dharma Bhava	Ninth House	god, guru, father, travels, piety.

	Bhava.	House.	Signification.
(10) Karma	Bhava	Tenth House	occupation, karma, philosophical knowledge.
(11) Labha	Bhava	Eleventh House	gains.
(12) Vraya	Bhava	Twelfth House	loss, moksha.

33. The Astrological Measure. — The various sources of strength and weakness of the planets and Bhavas are estimated by certain units or measures. They are Rupas, Virupas and Prarupas. 60 prarupas are equal to 1 Virupa and 60 Virupas make 1 Rupa.

ASTRONOMICAL TERMINOLOGY

34. The Axis and Poles of the Earth. — The axis of the earth is that diameter about which it revolves from west to east with a uniform motion. The poles of the earth are its points where its axis meets its surface and they are the North Pole and the South Pole.

35. The Earth's Equator (Vishavarekha) This is an imaginary line running round the earth half way between the two poles. The equator divides the earth into a northern and a southern hemisphere.

36. The Latitude (Akshamsa).—The latitude of a place is its distance North or South of the equator, measured as an angle, on its own terrestrial meridian. It is reckoned in degrees, minutes and seconds from 0° to 90° , northwards or southwards according as the place lies in the northern or southern hemisphere.

37. The Longitude (Rekhamsa).—The longitude of a place is its distance East or West of the meridian of Greenwich (Ujjain according to the Hindus) measured as an angle. It is expressed as so many degrees, minutes and seconds, East or West of Greenwich according to where the place lies. It is also reckoned in time at the rate of 24 hours for 360° or 4 minutes for every degree.

38. The Celestial Equator (Nadivritta).—This is a great circle of the celestial sphere marked out by the indefinite extension of the plane of the terrestrial equator.

39. The Celestial Latitude (Kshepa).—This is the angular distance of a heavenly body from the ecliptic.

40. The Declination (Kranti).—This is the angular distance of a heavenly body from the celestial equator. It is positive or negative according as the celestial object is situated in the northern or southern hemisphere.

CHAPTER III.

THE AYANAMSA

41. The Equinoctial Points.—The celestial equator and the ecliptic intersect each other in two points; because, twice a year the Sun crosses the equator. On these two days the duration of day and night will be equal all the world over. These two points are known as the equinoctial points or the Vernal Equinox and the Autumnal Equinox.

42. Precession of the Equinoxes.—It has been observed and proved mathematically, that each year at the time when the Sun reaches his equinoctial point of Aries 0° when throughout the earth, the day and night are equal in length, the position of the earth in reference to some fixed star is nearly $50\frac{1}{2}''$ of space farther west than the earth was at the same equinoctial moment of the previous year. It is not merely the earth or the solar system, but the entire zodiac that is subjected to this westward motion. This slight increment—retrograde motion of the equinoxes—is known as the Precession of the Equinoxes.

43. Movable and Fixed Zodiacs.—We have seen from the above that the Vernal Equinox

slips backwards from its original position—recognised as the star Revati—by the Hindus. The zodiac which reckons the first degree of Aries from the equinoctial point which has a precession every year is the Movable Zodiac—whilst, in the case of the Fixed Zodiac, the first degree of Aries begins from a particular star in the Revati group of stars which is fixed. The movable zodiac is also termed as the Zodiac of Signs while the fixed zodiac is known as the Zodiac of Constellations, as its signs are almost identical with the constellations bearing the same names.

44. The Sayana and the Nirayana Systems. The system of astronomy which recognises the movable zodiac belongs to the Sayana school while that which considers the fixed zodiac is termed as the Nirayana system. The Sayana is the one employed by western astrologers for predictive purposes while the Hindu astrologers use the fixed zodiac.

45. The Ayanamsa.—The distance between the Hindu First Point and the Vernal Equinox, measured at an epoch, is known as the Ayanamsa.

46. Varahamihira's Observations.—Even Varahamihira, one of the most celebrated of ancient writers in India, perpetuates and carries on the teachings of his far more ancient predecessors in marking the distinction between the

two zodiacs and referring all the astrological observations to the fixed zodiac. He states, that in his time, the summer solstice coincided with the first degree of Cancer, and the winter solstice with the first degree of Capricorn, whereas at one time the summer solstice coincided with the middle of the Aslesha.

47. Exact date of Coincidence not known. The exact period when both the zodiacs coincided in the first point is not definitely known and accordingly the Ayanamsa—the precessional distance—varies from 19° to 23° . The star which marked the first point seems to have somehow disappeared though some believe that it is 11' east of the star Pisces. A number of dates is given as the year of the coincidence, *viz.*, 361 A.D., 498 A.D., 394 A.D., 397 A.D., 559 A.D., etc.; which to accept, and which to reject, has been a matter of considerable doubt. No definite proof is available in favour of any one of the dates given above. No amount of mere speculation would be of any use, especially in such matters. Some attribute these differences to the supposed errors in Hindu observations. Whatever they may be, it is not our purpose here to enter into any sort of discussion which would be purely of academical interest and absolutely outside our limits. As such without worrying the reader with the technicalities

involved in the discussion a most vital question like that of the Precession of the Equinoxes we shall directly enter into setting below, a simple method for ascertaining the Ayanamsa, which will serve the purpose of any scientific astrologer and which would enable the reader to thoroughly understand and follow the principles described in the following pages.

48. **Use of Ayanamsa.**—The Indian adepts in the celestial science, realising, that the degrees of the fixed zodiac have a permanent relation with the star—points, and that the movable zodiac does not give us a definite position both for observation and experiment and to arrive at logical conclusions, have been advocating the Nirayana positions of planets for all predictive purposes, which should be arrived at after the necessary calculations are made according to Sayana and then the Ayanamsa subtracted from such positions. For astrological purposes, it would be quite sufficient, if we know how, to determine the Ayanamsa for any particular year. Since the object of this book is not to enter into any discussion about the superiority of this or that system, or the justification of adopting any particular value as the Ayanamsa, but to clearly describe and expound principles necessary for correct computation of a horoscope mathematically, according to the prescribed rules and

determine the various sources of strength and weakness of planets and discover other details that are within the reach of mathematical astrology and thus clear the way for making correct predictions, we do not, propose to lay any further stress on this question of Ayanamsa.

The Longitudes of the Houses (Bhava Sphutas), Rasimanas (Oblique Ascensions) and other important calculations are all computed for Sayana Rasis. From these the Ayanamsa is subtracted and thus the Nirayana Bhavas, etc., are obtained. In other words, every one of the Hindu astrological calculations which is at first based upon the Sayana Rasis, is eventually subjected to Nirayana reduction. All these indicate the absolute necessity for Ayanamsa.

49. Determination of (Approximate) Ayanamsa.—(1) Subtract 397 from the year of birth (A.D.)

(2) Multiply the remainder by $50\frac{1}{3}''$ and reduce the product into degrees, minutes and seconds.

Example 1.—Determine the Ayanamsa for 1912 A.D.

$$1912 - 397 = 1515 \times 50\frac{1}{3}'' = 76,255''$$

$$76,255'' = 21^\circ 10' 55''.$$

Example 2.—Find the Ayanamsa for 1918 A.D.

$$1918 - 397 = 1,521 \times 50\frac{1}{3}'' = 76,557'' = 21^\circ 15' 57''.$$

The slipping back of the movable zodiac in a year is so small that for odd days, we can conveniently neglect it. But the Ayanamsa for the moment can be determined by considering the precession for the odd days also.

CHAPTER IV.

RASIMANAS

50. **Geographic and Geocentric Latitudes.**

The latitudes of places marked in any ordinary atlas are the geographical latitudes. Because they are calculated on the supposition that the earth is a perfect sphere, while on the other hand, the flattened ends at the two poles, make it a spheroid, so that, the latitude measured from the true centre of the spheroid, is the geocentric latitude. For astrological purposes, it would be hardly worthwhile making any distinction whatever between the geocentric and geographic latitude of a place. For instance, the geographic latitude of Bangalore is $12^{\circ} 57'$ and its geocentric $12^{\circ} 52'$. We can adopt the former alone for astrological calculations.

51. **Rasimanas.**—Rasimanas mean the rising periods of the twelve signs of the zodiac. It is impossible to find out the actual Lagna (Ascendant) in a horoscope or the different Bhavas (Houses) or the sunrise and sunset in any place without a knowledge of the Rasimanas, which vary from Akshamsa (latitude) to Akshamsa. It must be noted that the Rasimana is always given Sayana (with precession), that is

to say, the time of oblique ascension is computed for the signs of the movable zodiac. From this is subtracted the Ayanamsa and the appropriate time of oblique ascension and thus is got the Nirayana Rasimana. If the division of the zodiac into 12 signs be taken to commence from the equinoctial point, their rising periods for any particular place will not vary from year to year.

52. **Charakhandas.**—The duration of the signs of the zodiac varies in the different degrees of latitude which can be ascertained by the Charakhandas (ascensional differences) of the particular latitude. Say, for instance, two men are born at the same time, one in Bangalore and the other in Berlin. Their latitudes are different. The rising periods of the signs in Bangalore must be quite different from those in Berlin. The sunrise and sunset in both the places cannot be the same. Therefore the rising periods in the different latitudes must be definitely known before casting a horoscope.

These Charakhandas, (ascensional differences) referred to above, in Indian sidereal time, the unit of which is an Asu (which is the equivalent of four seconds in English sidereal time) are, in accordance with certain definite rules, added to or subtracted from, the time of the Right Ascension (Dhruva) of the various Sayana Rasis, in order to get their

Oblique Ascension (Chara). Since the Chara (period of oblique ascension) and the Dhruva (period of right ascension) are identically the same for the Vishavarekha (equinoctial latitude) the ascensional difference is zero (shunya) for all the places situated on the equator. The ascensional difference is the same, in respect of the same sign, for places situated in the same latitude.

To be more clear, the rising periods on the equator where the Charakhanda is zero—being known, it is possible to calculate the Rasimanas for any latitude, provided, its Charakhandas are also known.

53. Rising Periods on the Equator.—The rising periods of the zodiacal signs reckoned from Sayana Mesha are thus distributed on the equator (0° latitude.)

Asus.

Aries	Virgo	1674	Libra	Pisces
Taurus	Leo	1725	Scorpio	Aquarius
Gemini	Cancer	1931	Sagittarius	Capricorn

(6 Asus = 1 Vighatika = 24 Seconds.

60 Vighatikas = 1 Ghatika = 24 Minutes).

The above means that it takes for Aries, Virgo, Libra and Pisces, 1674 Asus or 4 Gh. 39 Vig. to rise at the eastern horizon on the equator and so on.

54. Determination of Rasimanas.—From or to the rising periods on the equator, the

Charakhandas of the required place from Aries to Gemini and from Capricorn to Pisces are subtractive* and from Cancer to Virgo and from Libra to Sagittarius are additive. That is, in the case of from Aries to Gemini and from Capricorn to Pisces, subtract the Charakhandas and from Cancer to Virgo and from Libra to Sagittarius add the Charakhandas of the required place and the rising periods of signs there, are obtained. These must be applied to any one of four triads as given above, into which the zodiacal signs are divided—commencing always from the Sayana Mesha, *i.e.*, the first 30° from the equinoctial point.

The following examples will clear the meaning.

Example 3.—Find the Rasimanas at 13° N. Lat. whose Charakhandas are 162, 130 and 53 Asus respectively.

Signs.	Rising periods at 0° Lat. (in Asus.)	Charakhandas on 13° N. Lat.	Times of oblique ascension at 13° N. Lat. (in Asus)	Times of oblique ascension at 13° N. Lat. (in Ghatis)	Gh.	Vig.
1. Aries	...	1,674 —	162	1,512	4	12
2. Taurus	...	1,795 —	130	1,665	4	$37\frac{1}{2}$
3. Gemini	...	1,931 —	53	1,878	5	13
4. Cancer	...	1,931 +	53	1,984	5	$30\frac{2}{3}$
5. Leo	...	1,795 +	130	1,925	5	$20\frac{5}{6}$
6. Virgo	...	1,674 +	162	1,836	5	6
7. Libra	...	1,674 +	162	1,836	5	6

* In North Latitudes.

Signs.	Rising periods at 0° Lat. (in Asus)	Charakandas on 13° N. Lat.	Times of oblique ascension at 13° N. Lat. (in Asus)	Times of oblique ascension at 13° N. Lat. (in Ghatis)	Gh.	Vig.
8. Scorpio ...	1,795 +	130	1,925	5	20 $\frac{5}{6}$	
9. Sagittarius ..	1,931 +	53	1,984	5	30 $\frac{2}{3}$	
10. Capricorn ...	1,931 —	53	1,878	5	13	
11. Aquarius ...	1,795 —	130	1,665	4	37 $\frac{1}{2}$	
12. Pisces ...	1,674 —	162	1,512	4	12	
			21,600	21,600	60	0

Example 4.—Find the Rasimanas at 51° 32' * N. Lat. whose Charakandas are 921, 737 and 307 respectively.

Signs.	Rising periods at 0° Lat. (in Asus.)	Charakandas at 51° 32' N. Lat.	Times of oblique ascension at 51° 32' N. Lat. (in Asus.)	Times of oblique ascension at 51° 32' N. Lat. (in Ghatis)	Gh.	Vig.
1. Aries ...	1,674 —	921	753	2	5 $\frac{1}{2}$	
2. Taurus ...	1,795 —	737	1,058	2	56 $\frac{1}{2}$	
3. Gemini ...	1,931 —	307	1,624	4	30 $\frac{2}{3}$	
4. Cancer ...	1,931 +	307	2,238	6	13	
5. Leo ...	1,795 +	737	2,532	7	2	
6. Virgo ...	1,674 +	921	2,595	7	12 $\frac{1}{2}$	
7. Libra ...	1,674 +	921	2,595	7	12 $\frac{1}{2}$	
8. Scorpio ...	1,795 +	737	2,532	7	2	
9. Sagittarius	1,931 +	307	2,238	6	13	
10. Capricorn	1,931 —	307	1,624	4	30 $\frac{2}{3}$	
11. Aquarius ...	1,795 —	737	1,058	2	56 $\frac{1}{2}$	
12. Pisces ...	1,674 —	921	753	2	5 $\frac{1}{2}$	
			21,600	21,600	60	0

* The Charakandas for 52° are considered.

(See Table I for Charakhandas for latitudes 1° to 60° .)

55. Duration of Signs in South Latitudes. The additive and subtractive Charakhandas of North Latitudes, become subtractive and additive respectively, in case of South Latitudes. For *e.g.* *add* 162 to 1,674 instead of subtracting, and the duration of Aries on 13° S. latitude is obtained. It is to be noted that signs of short ascension in N. Latitudes are signs of long ascension in S. latitudes.

CHAPTER V.

SUNRISE AND SUNSET

56. Apparent Time of Rising and Setting of the Sun.—The exact moment when the Sun first appears at the eastern horizon of a place is the time of sunrise there. Since the Sun has a definite diameter, the interval between the moment of the appearance of the first ray at the horizon, and the moment at which the Sun is just clear off the horizon, is some 5 or 6 minutes. If this is so, which represents the exact moment of sunrise? It has been acknowledged that it is the moment at which the centre of the solar disc rises at the eastern horizon, that marks the sunrise at the particular place. It must also be noted that on account of the refraction of the solar rays, due to the various strata enveloping the earth, the Sun is not really at the horizon where he appears to be so but is really below the horizon by about a few minutes of arc (Rekha). But we can take the apparent time as almost correct and need not worry ourselves with the so called delicate correct time of rising.

57. Apparent Noon.—This is marked when the centre of the Sun is exactly on the

meridian of the place. The apparent noon is almost the same for all places.

58. **Ahas and Ratri.**—Ahas is the duration of the day, *i.e.*, the duration of time, from sunrise to sunset, and Ratri, is the duration of time, from sunset to sunrise. On the equator, the Ahas and Ratri are always 30 ghatis or 12 hours each, while in other latitudes, the sum of Ahas and Ratri will be 24 hours, whereas the interval between sunrise and sunset and *vice versa*, varies, this variation depending upon the declination of the Sun and the latitude of the place.

The duration of *Ratri* in a place expressed in arc corresponds to the Sun's nocturnal arc and that of the day to his diurnal arc. If we knew either of these arcs, we could find out sunrise and sunset.

In dealing with the question of the Precession of the Equinoxes, we have called attention to the fact that on the days when the Sun occupies the equinoctial points, *i.e.*, twice a year, he is visible for 12 hours at all places and invisible for a similar period. On these two days the declination (kranti) of the Sun is zero.

During his northerly course, when he will have a north declination, the duration of days is longer than that of nights, *i.e.*, he is visible for longer periods in north latitudes, while the

reverse holds good for south latitudes. During his southerly course, when he will have a south declination, the duration of days is longer than that of nights in south latitudes, and the reverse holds good for north latitudes.

59. Hindu Method of Determination of Sunrise and of Sunset.—First of all note the latitude of the place for which sunrise and sunset are to be determined and then its charakhandas. Find out the position of Nirayana Sun* at approximate sunrise on that day. This can be done from any local reliable almanac. (See Chapter VII for determining longitudes of planets).

To this add Ayanamsa and the Sayana Ravi at sunrise is obtained: or the position of the Sayana Sun can be obtained by means of any modern ephemeris in which the positions of planets are to be found for Greenwich Mean Noon. By converting the approximate time (local) of sunrise to Greenwich mean time, the position of Sayana Surya—for sunrise can be found out. (See Chapter VI for Conversion of Time). Then find out the Bhuja (distance from the nearest equinoctial point) as follows:—

If the Sayana longitude of the Sun be less than 90° (i.e., the first three signs) it

* The solar date marked in the Hindu almanacs may be roughly taken as representing Sun's Nirayana longitude at sunrise on the particular day.

itself represents the Sun's Bhuja ; if it is more than 90° and less than 180° , subtract it from 180° and the result is Bhuja ; if it is more than 180° and less than 270° (*i.e.*, more than 6 signs and less than 9 signs) *subtract* 180° from the Sun's sayana longitude, the result represents Bhuja ; and if the sayana longitude of the Sun is more than 270° and less than 360° (more than 9 signs and less than 12 signs) subtract it from 360° and the result is Bhuja of the Sun.

If the Sun's sayana longitude is—Bhuja is

- (1) between 0° 90° Sun's sayana long itself.
- (2) " 90° 180° —Sun's sayana long.
- (3) • " 180° 270° Sun's sayana long— 180°
- (4) " 270° 360° —Sun's sayana long.

The Charakhandas given in three numbers are called the Adi (first), Madhya (middle) and Anthya (last) Charakhandas. The Adicharakhanda itself will be the first khanda ; this *plus* the madhya, the second khanda ; and the sum of the three (Charakhandas), the third khanda.

Now divide the Bhuja (if it is more than 30°) by 30. The quotient represents the khanda. Keep the remainder as it is and then apply the rule :—

As 30 degrees : the remainder :: the Charakhanda (Madhya, if Bhuja is more than 30° and less than 60° and Anthya if it is more than 60° and less than 90°) : the required quantity.

This required quantity must be added to the equivalent of the khanda represented by the quotient obtained by dividing the Bhuja by 30. The result is *chara*.

If the Bhuja is less than 30° then apply the rule :—

As 30 degrees : the degree (represented by Bhuja) ::
the Adicharakhanda : the required quantity.

Then the required quantity itself will be *chara*.

If the Sayana Sun is in Uttara (north) Gola (hemisphere), *i.e.*, from Aries to Virgo, add *chara* to 15 ghatis (6 hours). If he is in the Southern Gola (from Libra to Pisces) subtract this from 15 ghatis. The result is *Dinardha* (half diurnal duration). Twice this is the length of day. This deducted from 60 ghatis (24 hours) gives the length of night. Convert *Dinardha* into hours, etc., and add and subtract this figure to and from 12 noon. The apparent time of sunset and of sunrise respectively of the place are obtained.

Example 5.—Find the length of day and of night and the apparent time of sunrise and of sunset at a place on 13° N. Lat. and 5 h. 10 m. 20 s. E. Long. on 16th October (1918 A.D.).

	(First) Adi.	(Middle) Madhya	(Last) Anthya
Charakhandas ...	162	130 and 53 (In Asus), or	
	27 (27)	21.7 and 8.8 (In vighatis) (22) (9)	

∴ Khandas = I. 27 II. 49 III. 58

Nirayana Sun at

approximate

sunrise (6 A.M.) = ... $178^{\circ} 48' 0''$

Ayanamsa = ... $21^{\circ} 15' 57''$

∴ Sayana Sun = ... $200^{\circ} 3' 57''$
 $= 200^{\circ} 4' = \text{Libra } 20^{\circ} 4'.$

Since the Sayana longitude of the Sun is between 180° — 270° , apply Rule 3 to find out the Bhuja.

Rule 3.—Sun's Sayana long.— 180° =Bhuja.

$$200^{\circ} 4' - 180^{\circ} = 20^{\circ} 4'$$

Since in the above Bhuja, *viz.*, $20^{\circ} 4'$ is less than 30° , apply the following rule to get Chara—

As 30 degrees : the degrees represented by Bhuja :: Adicharakhanda : the required quantity = x .

∴ 30 : $20^{\circ} 4'$:: 27 = the required quantity = x .

$$\therefore x = \frac{20^{\circ} 4'}{30} \times 27 = 18\frac{8}{10} = 18 \text{ vighatis.}$$

∴ $x = 18$ vighatis = Chara itself.

∴ Sayana Sun is in Dakshina Gola (between Libra and Pisces)

∴ $\text{Dinardha} = \text{Gh. (15-0)} - \text{Gh. (0-18)}$
 $(\text{Half diurnal duration})$
 $= \text{Gh. } 14.42.$

∴ Length of day = Gh. 14.42 $\times 2$ = Gh. 29.24.

∴ Length of night = Gh. 60—Gh. (29.24)=
 $\text{Gh. } 30.36.$

Dinardha=Gh. 14.42; in hours = 5 h. 52 m. 48 s.

12 noon—5 h. 52 m. 48 s. = 6 h. 7 m. 12 s.

∴ **Apparent time of Sunrise** = 6 h. 7. m. 12 s. A.M.

12 noon + 5 h. 52 m. 48 s.=5 h. 52 m. 48 s.

(P.M.) sunset.

Example 6.—Find the length of day and of night and apparent time of sunset and of sunrise at 36° N. Lat. on 7th January 1932.

Charakshandas	=	522° 6' 418° 08' and 174° 18' (In Asus.)
	=	87° 70' and 29' (In vighatis.)
		I. II. III.
∴ Kshandas	=	87° 157° 186°
		S. D. M. S.
Nirayana Sun	=	8° 22° 30° 0°
Ayanamsa	=	0° 21° 27° 31°
∴ Sayana Sun	=	9° 13° 57° 31°
		= 13° 58' Capricorn.
		S. D. M.
		12° 0° 0°
Sayana Sun	=	9° 13° 58°
		2° 16° 2° = ^c Bhuja
		= 76° 2'

Divide Bhuja by 30 = $\frac{76^{\circ} 2'}{30}$ = Khanda 2
and remainder $16^{\circ} 2'$.

As $30 : 16^{\circ} 2' :: 29 : \text{the required quantity} = x$.

$$\therefore x = \frac{16\frac{1}{2}}{30} \times 29 = 15\frac{11}{30} \text{ vighatis} = 16 \text{ vighatis.}$$

16 Vig. + 157 (Khanda II) = 173 Vig. = Chara.

Gh. 15—Vig. 173 = Gh. 12-7 = Dinardha.

∴ Gh. 24-14 = length of day.

∴ Gh. 35-46 = length of night.

12 noon—4 h. 50 m. 48 s. = 7 h. 9 m. 12 s. (A.M.) sunrise
(Apparent time) = 7 h. 9 m. A.M.

12 noon + 4 h. 50 m. 48 s. = 4 h. 50 m. 48 s. (P.M.)
sunset (Apparent time)

I have given above the Hindu method of finding out the apparent time of sunrise and of sunset. Some say, that this method is riddled with certain errors. I have spoken sufficiently about the supposed errors that have crept into Hindu calculations in the Introduction to this book. I shall also give below, the modern method of the calculation of sunrise and of sunset and the reader can adopt whichever he prefers. I shall apply this method to the examples worked out for the Hindu method so that the results in both the cases may be compared. Those who want to adopt the Hindu method may do so: and those who are in a position to work out problems in trigonometry may employ the modern method.

60. Modern Method of Determination of Apparent Time of Sunrise and of Sunset.—*First convert the local approximate time of sunset (or sunrise) into Greenwich Mean Time (see next Chapter) for which ascertain Sun's declination from the Ephemeris. Note down the latitude of the place and apply the following formula.

$$\begin{aligned} \text{Log. Tan. Dec. of Sun} + \text{Log. Tan. Lat. of place} \\ = \text{Log. Sin. Ascensional Difference.} \end{aligned}$$

Subtract ascensional difference from 90° if Dec. is South and add Asc. difference to 90° if Dec. is North.

(The reverse holds good for places in south latitudes).

* There is a slight difference between the results obtained according to Hindu and modern methods which may be safely overlooked for astrological purposes.

Convert the resulting degrees into hours, minutes, etc., at $15^\circ = 1$ hour. The result is local apparent time of setting. This subtracted from 12 hours gives local apparent time of sunrise.

Example 7.—Find the apparent time of sunrise and of sunset at a place on 13° N. Lat. and 5 h. 10 m. 20 s.

E. Long. on 16th October 1918.

Approximate time of sunset=6 P.M.

This converted to G.M.T. H. M. S.
(Greenwich Mean Time) = 12 49 40 (P.M.)

The difference between Greenwich Mean Noon and G. M. T. is only 49 m. 40 seconds. Therefore, we may take the declination of the Sun at G. M. N. on 16th October. The declination may be determined for 12 h. 49 m. 40 s. or 12-50 P.M. by considering Sun's motion (in dec.) in 24 hours and thus his proportional motion for 50 m.

Decn. on October 16th at (G.M.N.) = $8^\circ 41'$ S.

\therefore Log. Tan. $8^\circ 41'$ + Log. Tan. 13° = Log. Sin. Asc.
Diff.*

= $9.1839 + 9.3634 = 8.5473 = \text{Sin. } 2^\circ$ (roughly)

\therefore Log. Sin. Asc. Difference = Log. Sin. 2°
 \therefore Asc. difference = 2°

\because Declination is South: subtract this from 90°
 $\therefore 90^\circ - 2^\circ = 88^\circ$

$88^\circ 0' = 5$ h. 52 m. (P.M.) = Local apparent time of setting.

\therefore 12 h. — 5 h. 52 m. = 6 h. 8 m. = 6 h. 8 m. (A.M.) = Local apparent time of rising.

*Seven figure logarithmic tables may be consulted for greater accuracy.

Example 8.—Find the apparent time of sunrise and of sunset on 7th January 1932 at a place whose latitude is 36° N. and Long. 90° E.

Approximate time of sunset = 6 P.M.

This converted into G.M.T. = 12 noon.

Since G.M.T. corresponding to 6 P.M. has become the same as Greenwich Mean Noon, we may take the declination of the Sun at G.M.T. on 7th January.

\therefore Sun's Declination at 12 noon (G.M.T.) or at the sunset at the required place = $22^{\circ} 30'$ S.

\therefore Log. Tan. $22^{\circ} 30' +$ Log. Tan. $36^{\circ} =$ Log. Sin. Asc. Diff.

$$= 9.6172 + 9.8613 = 19.4785 = \text{Log. Sin. } 17^{\circ} 31'$$

\therefore Log. Sin. Asc. Difference = Log. Sin. $17^{\circ} 31'$

$$\therefore \text{Asc. Difference} = 17^{\circ} 31'$$

\therefore Dec. is S. subtract this from 90°

$$\therefore 90^{\circ} - 17^{\circ} 31' = 72^{\circ} 29'$$

$72^{\circ} 29' = 4 \text{ h. } 49 \text{ m. } 56 \text{ s.} =$ Local apparent time of setting = 4 h. 49 m. 56 s. (P.M.)

$\therefore 12 \text{ h.} - 4 \text{ h. } 49 \text{ m. } 56 \text{ s.} = 7 \text{ h. } 10 \text{ m. } 4 \text{ s.} =$ Local apparent time of rising. (A.M.)

61. Equation of Time.—This is the difference between Mean Time and Apparent Time. We obtain by the above methods the apparent time of sunrise. For this must be applied the equation of time in order to get the mean time, *i.e.*

• Equation of Time = Mean Time — Apparent Time at any moment.

(*vice versa* if A.T. is $>$ M.T.)

The equation of time at a moment is positive or negative according as the apparent time is less or greater than Mean Time.

62. Method of the Determination of Equation of Time to get, Mean Time from Apparent Time.—From any ephemeris find the Sidereal Time and the longitude (sayana) of the Sun for the G. M. N. or the G. M. T. corresponding to the approximate time of sunrise or sunset at the required place, on the required date. Find the Sidereal Time at which this particular degree (of Sun's sayana longitude referred to above) is on the cusp of the tenth-house of Greenwich or any place. This will give the Right ascension expressed in time of the Sun ; or we shall call this, for the sake of convenience, the Sun Time. Take the difference between the Sidereal Time and the Sun Time, and this represents the Equation of Time.*

If the Sun Time is less than the Sidereal Time, the Equation of Time must be subtracted from the Apparent Time (of sunrise or of sunset) in order to obtain the Local Mean Time of rising or of setting). If the Sidereal Time is less than Sun Time, add the Equation of Time for obtaining the Local Mean Time.

Example 9.—Find the Equation of Time on 16th

* It will do if the Equation of Time is found out for G.M.N.

October 1912, as applied to apparent time at sunrise, at Bangalore.

Approximate time of sunrise = 6 A.M.

= 12 h. 49 m. 40 s. (A.M.) G.M.T.

Sayana Longitude of Sun at G.M.N.

On October 15, was = $21^{\circ} 45' 46''$ Libra

On October 16th. = $22^{\circ} 45' 19''$

Sun's Sayana Long. at 49 m.

40 s. A.M. (G.M.T.) on 16th

October = $22^{\circ} 17' 56''$

When 22° Libra is on the Cusp

of the tenth-house Sidereal H. M. S.

Time = 13 21 20

When 23° Libra is on the cusp

of the tenth-house Sidereal H. M. S.

Time = 13 25 6

∴ When $22^{\circ} 17' 56''$ Libra is on

the cusp of the tenth-house

the Sidereal Time = 13 22 28

H. M. S.

∴ Sun Time = 13 22 28

Sidereal Time at (G.M.T.) 13 36 10

∴ Equation of Time at = -0 13 m. 42 s.

sunrise in the above given place, on October 16, i.e.,
at 12-50 A.M. (G.M.T.) October 16 was: -14 m

Approximate time of sunrise = 6 A.M. = 12 midnight
(G.M.T.)

Sayana Longitude of Sun at G.M.N.

on 7th January = $15^{\circ} 50' 36''$ Capricorn

∴ Sayana Longitude of Sun
at G.M.T. = $15^{\circ} 29' 1''$

When 15° Capricorn is on the cusp H. M. S.
of the tenth-house, Sidereal Time = 19 5 8

When 16° Capricorn is on the cusp
of the tenth-house, Sidereal Time = 19 9 26

∴ When $15^{\circ} 29' 1''$ —Sidereal time = 19 7 13

∴ Sun Time = 19 7 13

Sidereal Time (G.M.T.) = 19 0 48

∴ Equation of Time at sunrise in
the above given place on 7th
January, i.e., at 12 A.M. (G.M.T.)

7th January was + 0 5 25
+ 6 m.

This must be added to the Apparent Time of sunrise
in order to get the Mean Time of sunrise. We
add this because Sun Time is greater than Side-
real Time.

63. Mean Time of Sunrise and of Sunset.

Add or subtract the Equation of Time to or
from the apparent time (of sunrise or of sunset),
the respective Mean Time is obtained. The
Equation of Time is positive, (i.e., must be
added to the apparent time) if the Sun Time
(See Article 55) is greater than Sidereal Time
and it is negative, (i.e., must be subtracted from
the apparent time) if the Sun Time is less than
Sidereal Time.

Example 11.—Find the Mean Time of sunrise on October 16th, 1918 A.D. at a place on 13° N. Lat. and 5 h. 10 m. and 20 s. E. Long.

	H. M.
The apparent time of sunrise was	6 8 A.M. (Ex. 7)
The Equation of Time (as applied to apparent time at sunrise) was—	0 14 (Table III)
\therefore the Mean Time of sunrise on October 16th was	5 54 A.M.

Example 12.—Find the Mean Time of sunrise on 7th January 1932 at a place on 36° N. Lat. and 6 hours E. Long.

	H. M.
The apparent time of sunrise was	7 10 A.M. (Ex. 8)
The Equation of Time (as applied to apparent time of sunrise) was	+ 0 6 (Table III)
\therefore the Mean Time of sunrise there on 7th January was	7 16 A.M.

64. Easy Method for Finding the Mean Time of Sunrise and of Sunset.—I have elaborately discussed in the above pages, the method of calculating the Apparent Time of sunrise and of sunset for any place on any day, with suitable examples according to both the Hindu and Modern systems and the determination of Equation of Time (as applied to the apparent time of sunrise or of sunset) in order to obtain the Mean Time (of local sunrise or of sunset) I leave it to the discretion of the reader to choose the method he best prefers.

Those who are not familiar with the method of consulting the trigonometrical and Logarithmic Tables, a knowledge of which is essential for applying modern methods are requested to adopt the following rules:—

1. Calculate the Apparent Time of sunrise and of sunset according to the Hindu method (as given in Article 59).
2. Then instead of working out the problem for ascertaining the Equation of Time, the reader may conveniently find out the Equation of Time by referring to Table III, given at the end of the book.
3. Then apply this Equation of Time to get the Mean Time of sunrise and of sunset by adopting the rules contained in Article 63.

CHAPTER VI.

MEASURE AND CONVERSION OF TIME

65. **Hindu Chronology.**—The division of time is peculiar to the Hindus. It begins with a Tatpara and ends in a Kalpa (equal to 4,320,000,000 Sidereal years). The Hindu day (an apparent solar day) begins from sunrise and ends with the next sunrise. The division of time is thus—

60 Tatparas	=	1 Para
60 Paras	=	1 Vilipta
60 Viliptas	=	1 Liptha
60 Lipthas	=	1 Vighati
60 Vighatis	=	1 Ghati
60 Ghatis	=	1 Day.

I shall also introduce to the reader the three kinds of days now in vogue, though it is not worthwhile wasting any time over remembering them.

(a) **Sidereal Day.**—This is equal to 23 h. and 56 m. of Mean Solar Time. This is known as *Nakshatra Dina* among the Hindus and this is the time the fixed stars take to come round the Pole once.

(b) **Apparent Solar Day.**—This is known as the Savana Dina. This is longer than the Sidereal day by about four minutes.

(c) **Mean Solar Day.**—This is reckoned by considering the average length of all the days in a year.

Two kinds of months are generally in vogue among the Hindus, *viz.*, Chandramana and Souramana. The Chandramana is based upon the movements of the Moon in the celestial circle. The Solar month is the time, the Sun takes to move in one sign. The month varies in duration according to the number of days the Sun takes to move in a sign. When the Sun enters into the new sign during the course of the lunation, the month is intercalary (Adhika Masa) and is baptised by the name of that which precedes or succeeds it with some prefix to distinguish it from the regular month.

The Hindus have a Solar rather Sidereal year, which is their astronomical year, and a Lunar year which is their civil year.

The lengths of the various years are as follows according to modern calculations :—

	D.	H.	M.	S.
The Tropical year	...	365	5	48
The Sidereal year	...	365	6	9
The Anomalistic year	...	365	6	13
				48

66. **Local Mean Time.**—The local mean time of birth is very essential for the calculation of the horoscope. When the Sun is crossing the meridian of any place, it is twelve o'clock or midday at that place according to "Local Time". It is noon of local time on any day when the Sun reaches its highest point in the day. It is to be specially noted that the time shown by clocks and watches at any particular day is hardly the correct local mean time. Such times are subject to rectification by observing the course of events in one's life. Great care should be taken to see that watches and clocks, from which birth-times are recorded are accurate. Therefore, the first thing is to ascertain the correct local mean time of birth. The local mean time of a place depends upon its longitude, evidently terrestrial. In all Hindu astrological calculations the meridian of Ujjain was being taken when reckoning time or longitude, but now Greenwich is taken as the centre for such purposes. The local time of a place (L.M.T.) say 4 degrees east of Greenwich, will be 16 minutes later than Greenwich Mean Time (G.M.T.). In other words, if it is 12 noon at Greenwich, it will be 12 h. 4 m. (P.M.) in a place 1° E. to it, 11.56 A.M. in a place 1° W. to it and so on.

To reduce longitude into time, simply divide the number of degrees, minutes, etc., by

15 and the quotient will be the time. For instance, the longitude of Bangalore is $77^{\circ} 35'$ East of Greenwich. Dividing this by 15 we get 5 h. 10 m. 20 s. The place being East of Greenwich, it will be 5 h. 10 m. 20 s. (P.M.) at Bangalore—(otherwise termed as L.M.T.) when it is 12 noon at Greenwich or 8 h. 10 m. 20 s. (P.M.) when it is 3 P.M. at Greenwich and so on.

The local mean time can be obtained by adding to or subtracting from the Greenwich Mean Time, four minutes to every degree of longitude, according as the place is East or West of Greenwich.

The L.M.T. always synchronises with the G.M.T.

$$\text{L.M.T.} = \text{G.M.T.} \pm \frac{\text{Longitude}}{15^{\circ}}$$

- + if the place is East of Greenwich.
- if the place is West of Greenwich.

Example 13.—What is the L.M.T. of a place at Long. 78° West when it is 12 noon at Greenwich?

$$\begin{aligned}\text{L.M.T.} &= 12 \text{ noon} - \frac{78^{\circ}}{15^{\circ}} = 12 \text{ noon} - 5 \text{ h.} 12 \text{ m.} \\ &= 6 \text{ h.} 48 \text{ m. (A.M.)} \\ &\quad (\text{—because place is West of Greenwich}).\end{aligned}$$

67. Standard Time.—It is usual to choose for each country, or for each part of a large country, a standard time for use over the whole country. This standard time, as a rule, is the local time of some most important town in the

country. If the birth is recorded in L.M.T. well and good ; otherwise, the Standard Time of the country must be converted into the Local Mean Time. The time when Standard Times were introduced into different countries must be ascertained (See Table IV). In India Standard Time was introduced on 1-7-1905 and it is about 5 h. and 30 m. past (in advance) of Greenwich Mean Time. Before this, probably the Sun Dial Time was in existence, in which case, this can be converted into L.M.T. by applying the Equation of Time (as applied to sun dial time). For births that have occurred after 1-7-1905, if the time is recorded in Standard Time, it must be converted into L.M.T. Generally our clocks show Standard Time. For instance, Bangalore is 5 h. 10 m. 20 s. East of Greenwich ; when it is noon at Greenwich the L.M.T. at Bangalore is 5 h. 10 m. 20 s. (P.M.) whilst the clock at this time shows 5 h. 30 m. P.M. (Standard Time).

$$\text{L.M.T.} = \text{Standard Time} + \frac{\text{Difference between local}}{\text{and standard longitudes}} \text{ (expressed in time)}$$

+ if local longitude is $>$ Std. Long.

- if local longitude is $<$ " "

68. The Standard Horoscope.—In order to illustrate the various principles described in this book, we shall consider the nativity of a female born on 16th October 1918 A.D. ; at 2 h.

20 m. P.M. (Indian Standard Time) at a place on 13° N. Lat. and $77^{\circ} 35'$ E. Long. This horoscope will henceforth be termed as the Standard Horoscope.

Example 14.—Find the Local Mean Time, of birth in the Standard Horoscope, the Standard Long. being $82^{\circ} 30'$ E. of Greenwich. (5 h. 30 m. Fast of G.M.T.)

Standard Longitude	=	$82^{\circ} 30'$
Local Longitude	=	$77^{\circ} 35'$

Difference between St. Long.

and Local Long. = $4^{\circ} 55'$

$4^{\circ} 55' = 19$ m. 40 s. in time.

∴ Local Longitude is < Standard Longitude, this time must be subtracted from the Standard Time.

∴ L.M.T. = 2h. 20m. - 19m. 40s. = 2h. 0 m. 20 s. (P.M.)
= 2 P.M.

∴ L.M.T. of Birth = 2 P.M.

69. Suryodayadi Jananakala Ghatikaha.—

It is customary among the Hindus to mention the time of birth as "Suryodayadi Jananakala Ghatikaha", *i.e.*, the number of ghatis passed from sunrise up to the moment of birth. First ascertain the local mean time of birth and of sunrise and then apply the following rule. (24 seconds = 1 vighati; 24 minutes = 1 ghati; 1 hour = $2\frac{1}{2}$ ghatis.)

(Birth Time — Sunrise) $\times 2\frac{1}{2}$ = Suryodayadi Jananakala Ghatikaha.

Example 15.—Find the Suryodayadi Jananakala Ghatikaha in the Standard Horoscope?

Sunrise (L.M.T.) = 5-54 A.M. on 16th October.

Birth Time (L.M.T.) = 2 P.M.

∴ (2 P.M. — 5 h. 54 m.) $\times 2\frac{1}{2}$ = Gh. 20-15.

∴ Suryodayadi Jananakala Ghatikaha.

(Number of ghatis passed from
sunrise up to birth) ... = Gh. 20-15

Example 16.—Miss N. Born on 3-5-1932 at 5-45 A.M.
(L.M.T.) Lat. 13° N. and $75^{\circ} 0'$ E. Long. Find
Suryodayadi Jananakala Ghatikaha.

Sunrise (L.M.T.) = 5 h. 42 m. (A.M.)

Birth Time (L.M.T.) = 5 h. 45 m. (A.M.)

∴ 5 h. 45 m. (A.M.) — 5 h. 42 m. (A.M.) $\times 2\frac{1}{2}$ = Gh. $0-7\frac{1}{2}$
= Gh. 0-8.

Survodayadi Jananakala Ghatikaha = Vighatis 8 only.



CHAPTER VII

GRAHA SPHUTAS

(PLANETARY LONGITUDES)

70. **Hindu Almanac.**—It requires a considerable amount of familiarity with the advanced portions of astronomical principles, in order to find out the longitudes of planets independently, *i.e.*, without reference to any almanac. As such I have reserved discretion to expound those principles in a separate book, and for the present, simply describe the method commonly adopted by all astrological students and adepts. Any reliable almanac will serve our purpose. There are still a few standard *Panchangas* (almanacs) which can be trusted for astrological purposes.

71. **Method of Making Graha Sphutas.**—If the panchanga is available for the place of birth then no trouble of conversion of time is involved; otherwise, birth time must be converted into local time of the place, for which the almanac is calculated, in order to find out the planetary positions.

Find out the date of the birth in the almanac and note down all the details given for

that day. If no planets are marked on the day of birth, then trace back and find out the position of the planet on the date, nearest to that of birth. It will be found that the planet's position will have been marked in Nakshatras (Constellations) and Padas (Quarters), with time of entry in ghatis into the particular Pada. Find out the time at which the same planet enters the next quarter of the constellation. Mark the interval in ghatis between the entry of the planet into these two quarters. Mark also the interval between the first entry and the birth time and proceed as follows :—

Formula (a) For all Planets.

$$\frac{\text{The interval between the first entry and birth}}{\text{The interval between the two entries}} \times 3\frac{1}{2}$$

 = The number of degrees traversed in that particular quarter.

Formula (b) For the Moon.

$$\frac{\text{The interval between entry into the 1st degree of the sign and birth}}{\text{Time taken for traversing the sign}} \times 30^\circ$$

Add this to the number of degrees the planet has passed, up to the first entry. Its Nirayana longitude is obtained.

Example 17.—Find the Nirayana Longitudes of planets in the Standard Horoscope ?

The Almanac for 1918 gives the following information :
 13-10-1918. Sun enters 2nd of Chitta at 51-54 Ghatis.
 17-10-1918. , 3rd , at 12-10 ,

Therefore the period taken by the Sun to pass through one pada or $3\frac{1}{3}$ degrees of the celestial arc is:—

Gh. Vig.

13th October 8 6 (Subtract the time of entry from 60, the duration of a day).

14th	„	60	0
15th	„	60	0
16th	„	60	0
17th	„	12	10

Total Gh. 200 16 or 12,016 vighatis.

Time elapsed from the entry of the Sun into the 2nd of Chitta (which is nearest to the birth) up to the moment of birth:—

Gh. Vig.

13th October	8	6	
14th	„	60	0
15th	„	60	0
16th	„	20	15 (Birth Time)

Total Gh. 148 21 or 8,901 vighatis.

Applying formula (a) :—

$$\frac{8901}{12016} \times 3\frac{1}{3}^{\circ} = 2^{\circ} 28' 9''$$

This distance, the Sun has passed in the second pada or quarter of Chitta. We know that the last three quarters of Uttara, the four of Hasta and the first two of Chitta constitute Kanya (Virgo). Up to the second of Chitta, the number of quarters passed in Virgo is:—

Uttara	3
Hasta	4
Chitta	1

$$8 \text{ Padas or } \frac{10}{3} \times 8 = 26^{\circ} 40'.$$

This added to the number of degrees passed in the second of Chitta, *viz.*, $2^{\circ} 28' 9''$ gives his true Nirayana Longitude as $29^{\circ} 8' 9''$ or $29^{\circ} 8'$ in Virgo = $179^{\circ} 8'$ from the first degree of Aries.

THE MOON

			Gh. Vig.
14-10-1918	Duration of Sravana	= 59	21
∴ Dhanista lasts for		0	39 (Subtracting 59-21 from 60)
15-10-1918	Do	57	14
∴ Duration of Dhanista		57	53
15-10-1918	Satabhisha lasts for	2	46 (Subtracting 57-14 from 60)
16-10-1918	Do do	54	19
∴ Duration of Satabhisha		57	5
16-10-1918	Poorvabhadra lasts for	5	41 (Subtracting 54-19 from 60)
17-10-1918	Do	50	48
∴ Duration of Poorvabhadra		56	29

Aquarius is made up of : last two quarters of Dhanista *plus* Satabhisha *plus* first 3 of Poorvabhadra.

$$= \frac{1}{2} (57-53) + (57-5) + \frac{3}{4} (56-29) \\ = \text{Gh. } 128-23.$$

i.e., The Moon takes Gh. 128-23 to travel through the sign of Aquarius—

The interval between the Moon's entry into the first degree of Aquarius and birth time is found as follows :—

$$\frac{1}{2} (57-53) + (23-1) = \text{Gh. } 51-57\frac{1}{2} \\ = 51-57$$

Applying Formula (b)

$$= \frac{\text{Gh. } 51-57}{\text{Gh. } 128-23} \times 30^\circ = 12^\circ 8' 22'' \text{ in Aquarius.}$$

Mo $\ddot{\text{a}}$ n's Nirayana Position is $12^\circ 8' 22''$ in Aquarius,
i.e., $312^\circ 8' 22'' = 312^\circ 8'$ from the first
 degree of Aries.

72. Nirayana Longitudes of Planets.—
 The Longitudes of other planets, similarly found out, are reproduced below for ready reference.

Graha (Planet)	Sphashta (Longitude)	
Sun	179°	8'
Moon	312	8
Mars	229	49
Mercury	180	33
Jupiter	83	35
Venus	170	4
Saturn	124	51
Rahu	233	23
Kethu	53	23



CHAPTER VIII.

LAGNA SPHUTA

(THE ASCENDANT)

73. **Lagna or Ascendant.**—Lagna or the ascendant is that point of the cliptic, which is at any time on the eastern horizon, and is expressed in signs, degrees, etc., of Stellar Aries.

74. **Solar Months.**—The earth is egg-shaped and rotates once in a day on its axis from west to east, and thus, all the zodiacal signs are invariably exposed to the solar influence. The twelve solar months are named after the twelve zodiacal signs. On the first day of Aries the first degree of that particular sign is at the eastern horizon, and the remaining signs are gradually exposed till the next day when at the sunrise, the second degree of Aries will be at the eastern horizon. The sunrise takes place on the last degree of the Zodiac on the 30th day of Pisces when the solar year closes, *i.e.*, the Lagna is that particular place or point, which is on the eastern horizon at any particular time. The sunrise determines the Udaya Lagna and the degree and the sign in which the Sun rises, will be the Ascendant at that moment.

75. **Determination of Lagna.**—First find out the true Nirayana position of the Sun and add the Ayanamsa to it so that the Sun's Sayana Longitude is obtained. Ascertain the sign of the ecliptic the Sun is in, the degrees he has traversed in it, and those he has yet to pass through. The number of degrees he has gained are the Bhukthamsas, and those to cover, the Bhogyamsas. Now from the *Rasimanas* of the place, find out the *Bhogya Kala*, *i.e.*, the time required to pass through the Bhogyamsas, thus:

Formula (a)

$$\frac{\text{Period of rising sign where the Sayana Sun is}}{30^\circ} \times \text{Bhogyamsas} = \text{Bhogya Time.}$$

Now from the *Ishta Kala* (the time for which the Lagna is to be found) subtract the Bhogya time and from the remainder subtract the periods of rising of the next successive signs as long as you can. Then at last you will find the sign, the rising period of which being greater than the remainder, you will not be able to subtract and which is consequently called the Ashuddha sign and its rising period the Ashuddha rising. It is evident that the Ashuddha sign is of course on the horizon at the given time. The degrees of the Ashuddha sign which are above the horizon, are the passed degrees and hence called the Bhuktha—are thus found.—

Formula (b)

30°

The remainder
X of given time.

Rising period of the Ashuddha sign

= Passed degrees of the
Ashuddha sign.

Add to these passed degrees thus determined, the preceding signs reckoned from the first point of Aries and from the total subtract, the Ayanamsa. The remainder represents the Lagna from the Stellar Aries.

Example 18.—Find the Lagna in the Standard Horoscope.

Nirayana Sun	...	178°	49'	0"
Ayanamsa	...	21	15	57
Ishta Kala, <i>i.e.</i> , Suryodayadi				
Jananakala Ghatikaha	Gh.	20	15	

Nirayana Long. of the Sun	...	178°	49'	0"
Ayanamsa	...	21°	15'	57"

Sayana Long. of the Sun	...	200°	4'	57"
-------------------------	-----	------	----	-----

i.e., the Sayana Sun is in Libra 20° 5'

∴ Bhukthamsas = 20° 5' in Libra.

∴ Bhogyaamsas = 9° 55' ,

$$\therefore \text{Bhogya Time} = \frac{\text{Gh. } 5-6}{30} \times 9° 55' = \text{Gh. } 1.41\frac{3}{20}$$

i.e., the Sun has to traverse in Libra for Gh. $1.41\frac{3}{20}$

Scorpio	...	5-20	$\frac{5}{6}$
Sagittarius	...	5-30	$\frac{5}{6}$
Capricorn	...	5-13	

Gh. 17-45 $\frac{1}{20}$
Gh. Vig.

Ishta Kala = 20 15

Ghati passed till the end of

Capricorn = 17 45

Bhuktha period in the Ashuddha
sign, *viz.*, Aquarius. Gh. 2 30

The Bhukthamsas corresponding to the above Bhuktha time—

$$\begin{array}{c} \text{Applying} \quad 30 \\ \text{Formula (b)} = \frac{30}{\text{Gh. } 4-37\frac{1}{2}} \times \text{Gh. } 2-30 = 16^\circ 12' 58'' \\ \text{Gh. } 4-37\frac{1}{2} \quad \text{(Aquarius).} \\ \therefore \text{The Sayana Lagna} = 16^\circ 12' 58'' \\ \text{Less Ayanamsa} \quad \quad \quad 21 \quad 15 \quad 57 \\ \hline \therefore \text{The true Lagna} \quad \quad \quad 24 \quad 57' \quad 1'' \\ \text{or} \quad 24^\circ 57' \end{array}$$

The Lagna of Standard Horoscope is $24^\circ 57'$, Makara or Capricornus or

Converting this into degrees, $294^\circ 57'$ from the first point of Stellar Aries.

Now adding 180° to this, *viz.*, the Udaya Lagna, the Asta Lagna (Descendant) is obtained.

76. Rasi Kundali.—This is the Zodiacal Diagram representing a picture of the heavens at the time of birth. The diagram given below is the one generally in vogue in South India.

α	γ	δ Kethu	π Jupiter
$\sim\sim$ Moon			ϖ
	MAP OF THE HEAVENS		Ω
ν Ascdt.			Ω Saturn
$\ddot{\alpha}$	m Mars Rahu	\sim Mercury	π Venus Sun

CHAPTER IX.

DASAMA BHAVA SPHUTA (TENTH HOUSE OR THE MID-HEAVEN)

77. **The Dasama Bhava.**—This is also known as the Madhya Lagna. It is on the correct determination of this that rests the entire fabric of the horoscope. In fact, all the other Bhavas (Houses) are very easily arrived at, after the longitude of the Dasama Bhava has been definitely ascertained. In the astronomical language, the Madhya Lagna may be described, as the culminating point of the ecliptic on the meridian. Astrologically speaking, the Dasama Bhava plays a very important part in the profession, rather the means of livelihood of a person—otherwise known as *Karma*.

78. **Rasi Chakra.**—A broad distinction must be maintained between the Rasi Chakra (see Art. 76) and the Bhava Chakra (see Art. 81) so that the reader does not mistake the one for the other. The Rasi Chakra is simply a figure of the Fixed Zodiac with the limits and occupants of its 12 signs as well as Lagna clearly marked. Each sign is just one-twelfth part of the zodiac made up of 30 ecliptic degrees.

79. Erroneous Conception of Bhava

Chakra.—The conception prevalent amongst some astrologers, that after the Lagna Sphuta has been made, the other Bhavas can be easily determined, by assuming, that the influence of Lagna extends 15° on either side and then commence the succeeding and the preceding Bhavas, is erroneous, wholly unscientific and equally misleading: for, by doing so, we will be ignoring completely the importance of the variation of the influence with regard to each degree and minute of terrestrial latitude and longitude, let alone other things of more serious importance. In other words, the Rasi Chakra is passed off for the Bhava Chakra and accordingly the predictions made.

The reader is now aware of the definition of the Rasi Chakra and from what follows on the definition of the Bhava Chakra, he will realise the blunder, one would commit, if he took the former for the latter and the consequences that would inevitably follow.

80. Bhaskara's Definition.—Bhaskaracharya, describes a Bhava Chakra thus. “The point where the ecliptic cuts the horizon in the East is known as the Rising Lagna, and the point where the ecliptic cuts the horizon in the West is known as the Setting Lagna and the points where the meridian of the place cuts the

ecliptic are known as the Zenith Lagna and the Nadir Lagna."

81. **Bhava Chakra.**—This is an unequal marking of the ecliptic into twelve divisions (Houses) with reference to the latitude of the place and the moment of birth. (See next Chapter for the definition of a House). The Bhava Sphutam involves elaborate processes such as the determination of the limits—cusps of the various *Bhavas* (Houses)—comprehended as Bhava *Sandhis* and other details connected with them, which evidently form the subject matter of the succeeding chapter.

82. **Method of Determination of the Mid-heaven.**—The interval between the midday and the time of the day indicated by the position of the Sun is termed as *Natha*, *i.e.*, the meridian-distance. This *Natha* may be either *Prag*, *i.e.*, eastern or *Paschad*, *i.e.*, western. It is *Prag* between midnight and midday and *Paschad* between midday and midnight. The *Prag Natha* comprehends two conditions: *viz.*,

- (1) the distance between the Sun and the Meridian when the birth occurs after sunrise; and
- (2) the distance between the Meridian and the Sun when the birth occurs before sunrise, *i.e.*, when the Sun is still below the eastern horizon :

Similarly the Paschad Natha also includes two cases, *viz.*,

- (1) the distance between the Meridian and the Sun if the birth happens within sunset and
- (2) the distance between the Meridian and the Sun after he has set. Natha when subtracted from 30 ghatis gives Unnatha.

Here it must be noted that Meridian refers to apparent noon and the Sun refers to the birth time.

After clearly understanding the meaning and significance of the words Natha and Unnatha, ascertain, if the birth has fallen in Pragnatha or Paschadnatha : In Pragnatha,

- (a) If the birth has occurred after sunrise, deduct the birth time from *Dinardha* (half-diurnal duration).
- (b) If it has occurred before sunrise add *Dinardha* to the ghatis elapsed from the birth time up to sunrise.

The result in both the cases is Pragnatha, *i.e.*, Pragnatha is indicated by the time elapsed between birth-moment and local apparent noon. In Paschadnatha,

- (a) If the birth has taken place in the afternoon and before sunset, deduct *Dinardha* from the birth time (in ghatis).

(b) If the birth has occurred after sunset, add Dinardha to the interval between sunset and birth moment ; the duration of paschadnatha is obtained.

The above observations may be summarised thus :—

Rule 1.—When Birth is between Midnight and Midday.

- (a) Dinardha — Suryodayadi Jananakala Ghatikaha = Pragnatha Period.
- (b) Dinardha + interval between birth and sunrise = Pragnatha Period.

Rule 2.—When Birth is between Midday and Midnight.

- (a) Suryodayadi Jananakala Ghatikaha—Dinardha = Paschadnatha Period.
- (b) Dinardha + interval between sunset and birth = Paschadnatha Period.

Rule 3.—30 Ghatis — Natha = Unnatha.

Example 19.—Find the nature of the Natha and its duration in the Standard Horoscope.

It comes under “ birth between midday and midnight ” and Rule 2 (a) can be applied to it as the birth has occurred after midday and before sunset.

Dinardha (Half diurnal duration) = Gh. 14 vig. 42
Birth Time = Gh. 20 vig. 15.

∴ Gh. 20 vig. 15 — Gh. 14 vig. 42 = Gh. 5 vig. 33.

∴ Nature of Natha = Paschad.

Its duration = Gh. 5-33*.

Natha is simply the interval between the Mean Time of Apparent Noon and Mean Time of Birth. In this case the interval is, L.M.T. of Birth (2 P.M.)—M.T. of Apparent Noon (11-46 A.M.) = 2 h. 14 m. = Gh. 5-35. The difference of 2 vighatis is due to the difference in the time of sunrise between Hindu and modern methods, which may be safely rejected for astrological purposes.

Example 20.—What is the Unnatha period in a case in which pragnatha = 17 Ghatis.

Applying Rule 3, we get

$$\text{Gh. 30} - \text{Gh. 17} = \text{Gh. 13} = \text{Period of Unnatha.}$$

From the position of the Sayana Sun and reckoning the rising periods on the equator, find out the arc (in the reverse order) that corresponds to the Natha period. Add this to or subtract from Sayana Ravi according as the Natha is Paschad or Prag. The result diminished by Ayanamsa, gives Nirayana Madhya Lagna.

Example 21.—Deduce Nirayana Madhya Lagna in the Standard Horoscope.

$$\text{Paschadnatha} = \text{Gh. } 5.33 \text{ (Ex. 19)}$$

$$\text{Sayana Sun} = 200^\circ 24'$$

The rising period of $20^\circ 24'$

$$\text{Libra at the equator} = \frac{20^\circ 24'}{30} \times \text{Gh. } 4.39 = \text{Gh. } 3.9\frac{18}{30}$$

or 3.10

Reckoning in the reverse direction, we find that Gh. 3 vig. 10 are passed in Libra.

In Virgo have passed, Natha — Gh. 3 vig. 10 or Gh. 5 vig. 33 — Gh. 3 vig. 10 = Gh. 2-23.

$$\therefore \text{Arc corresponding to Gh. 2 vig. 23 Virgo (on the Equator)} = \frac{\text{Gh. 2 vig. 23}}{\text{Gh. 4 vig. 39}} \times 30^\circ = 15^\circ 22' 34\frac{11}{30}''$$

$$= 15^\circ 22' 35''$$

\therefore The distance between the Sun and the meridian is

$$\text{Libra} \dots 20^\circ 24'$$

$$\text{Virgo} \dots 15^\circ 22' 35''$$

$$\text{Meridian distance} \underline{\underline{35^\circ 46' 35''}}$$

Since the Natha is Paschad, add this to Sayana Sun.

Sayana Sun	...	200°	24'	
Meridian distance	...	35	46	35"
				<hr/>
∴ Sayana Madhya Lagna		236°	10'	35"
Less Ayanamsa	...	21	15	46
				<hr/>
∴ Nirayana Madhya Lagna		214°	54'	49"
	=	214°	55'	
∴ The Mid-heaven or Madhya Lagna =		214°	55'	
	=	Scorpio	4	55

In other words, this is the Longitude of the Bhava
Madhya or the middle point of the Tenth-house.

CHAPTER X.

BHAVA SPHUTA (LONGITUDES OF HOUSES)

83. **Bhava or House.**—According to the Hindus a Bhava means one-third of the arc of the ecliptic intercepted between any two adjacent angles, *viz.*, the Udaya Lagna (Eastern Horizon), the Patala Lagna (The Lower meridian), the Asta Lagna (Western Horizon), and the Madhya Lagna (Upper Meridian).

84. **Bhava Madhyas.**—The points of trisection of the ecliptic arcs referred to above are the *Bhava Madhyas* or the mid-points of the Bhavas.

85. **Kendra Bhavas.**—These are the four angular houses in a horoscope, *viz.*, the Udaya Lagna, the Pathala Lagna, the Asta Lagna and the Madhya Lagna, (Article 83) and they are considered very important astrologically.

86. **Determination of Kendra Bhavas.**—The preceding two chapters deal exhaustively with the method of determining the Ascendant and the Mid-heaven—two of the Kendra Bhavas. The Asta Lagna (Descendant or

Western Horizon) and the Pathala or Rasathala Lagna (Lower Meridian) are determined thus:—

Rule 1.—Udaya Lagna (Ascendant or East Horizon) + 180° = Asta Lagna (Descendant or West Horizon.)

Rule 2.—Madhya Lagna + 180° = Rasathala Lagna. (Upper Meridian) + 180° = (Lower Meridian).

Example 22.—Determine the Longitudes of the Asta Lagna and Pathala Lagna in the Standard Horoscope ?

$$\begin{aligned} \text{Udaya Lagna} &= 294^\circ 57' \\ \text{Madhya Lagna} &= 214^\circ 55' \end{aligned}$$

(Applying Rule 1)

$$\therefore 294^\circ 57' + 180^\circ = 114^\circ 57' \text{ (Expunge } 360^\circ\text{)}$$

(Applying Rule 2)

$$\therefore 214^\circ 55' + 180^\circ = 34^\circ 55' \text{ (Expunge } 360^\circ\text{)}$$

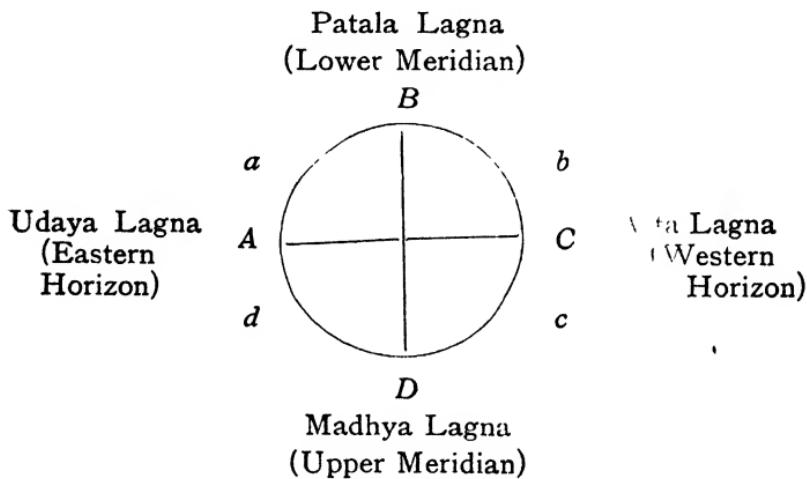
$$\therefore \text{Asta Lagna} = 114^\circ 57'$$

$$\text{Pathala Lagna} = 34^\circ 55'$$

87. Non-Angular Houses.—These are the houses between the angular ones. For instance angular houses are the I (Eastern Horizon)—IV (Lower Meridian)—VII (Western Horizon)—and X (Upper Meridian). The rest, *viz.*, II, III, V, VI, VIII, IX, XI and XII are the Non-angular houses otherwise known as the Panapara Bhavas (Succedent Houses), and the Apoklima Bhavas (Cadent Houses)—see Articles 22 and 23. The Madhyas of these bhavas are the points of trisection referred to above (Articles 83 and 84).

88. Determination of Bhava Madhyas of Non-angular Houses.—There are four angles in a Bhava Chakra. First ascertain—rather determine the ecliptic arcs between these four angles,

viz., (a) the arc between the Eastern Horizon and the Lower Meridian; (b) between the Lower Meridian and the Western Horizon; (c) between the Western Horizon and the Upper Meridian; (d) and between the Upper Meridian and the Eastern Horizon.



A, B, C, D. = Angular Houses.

a, b, c, d. = Ecliptic arcs.

Trisect each arc: for instance, trisect arc *a*. The result is $\frac{1}{3}a = a/3$. Add this to the Longitude of the Bhava Madhya of the Udaya Lagna and that of the II Bhava (Madhya) is obtained. To the Longitude of the II Bhava add $a/3$; that of the III is obtained. Again trisect arc *b*. The result would be $b/3$; add $b/3$ to the Longitude of the Lower Meridian; that of the V Bhava is obtained. Similarly deal with the other arcs for obtaining the Madhyas of the rest of the Bhavas. The four arcs may thus be determined.

Arc a = Longitude of Lower Meridian — Long. of Eastern Horizon.

Arc b = Long. of Western Horizon — Long. of Lower Meridian.

Arc c = Long. of Upper Meridian — Long. of West. Horizon.

Arc d = Long. East Horizon — Long. of Upper Meridian.

Example 23.—Determine the ecliptic arcs between the four angles in the Standard Horoscope?

$$\text{Arc } a = 34^\circ 55' - 294^\circ 57' = 99^\circ 58'$$

$$\text{Arc } b = 114^\circ 57' - 34^\circ 55' = 80^\circ 2'$$

$$\text{Arc } c = 214^\circ 55' - 114^\circ 57' = 99^\circ 58'$$

$$\text{Arc } d = 294^\circ 57' - 214^\circ 55' = 80^\circ 2'$$

$$*a = 99^\circ 58'$$

$$\therefore b = 80^\circ 2'$$

$$c = 99^\circ 58'$$

$$d = 80^\circ 2'$$

Example 24.—Find the Bhava-Madhyas of the Non-angular Houses in the Standard Horoscope?

Long. of the Udaya Lagna = $294^\circ 57'$

$$\text{Arc } a^* = 99^\circ 58'.$$

∴ Trisecting Arc a we get

$$\frac{a}{3} = \frac{99^\circ 58'}{3} = 33^\circ 19\frac{1}{3}'$$

$$\therefore 294^\circ 57' + 33^\circ 19\frac{1}{3}' = 328^\circ 16\frac{1}{3}' = \text{II Bhava}$$

$$328^\circ 16\frac{1}{3}' + 33^\circ 19\frac{1}{3}' = 361^\circ 35\frac{2}{3}' = \text{III Bhava}$$

Long. of Lower Meridian = $34^\circ 55'$

$$\text{Arc } b = 80^\circ 2'$$

∴ Trisecting Arc b , we get

$$\frac{b}{3} = \frac{80^\circ 2'}{3} = 26^\circ 40\frac{2}{3}'$$

$$\therefore 34^\circ 55' + 26^\circ 40\frac{2}{3}' = 61^\circ 35\frac{2}{3}' = \text{V Bhava.}$$

$$61^\circ 35\frac{2}{3}' + 26^\circ 40\frac{2}{3}' = 88^\circ 16\frac{1}{3}' = \text{VI Bhava.}$$

* Note—Arc $a = c$ and arc $b = d$.

Long. of Western Horizon = $114^{\circ} 57'$
 Arc *c* = $99^{\circ} 58'$
 $\therefore c/3 = 33^{\circ} 19\frac{1}{3}'$
 $\therefore 114^{\circ} 57' + 33^{\circ} 19\frac{1}{3}' = 148^{\circ} 16\frac{1}{3}' = \text{VIII Bhava}$
 $148^{\circ} 16\frac{1}{3}' + 33^{\circ} 19\frac{1}{3}' = 181^{\circ} 35\frac{2}{3}' = \text{IX Bhava}$
 Long. of Upper Meridian = $214^{\circ} 55'$
 Arc *d* = $80^{\circ} 2'$
 $\therefore d/3 = 26^{\circ} 40\frac{2}{3}'$
 $\therefore 214^{\circ} 57' + 26^{\circ} 40\frac{2}{3}' = 241^{\circ} 35\frac{2}{3}' = \text{XI Bhava}$
 $241^{\circ} 35\frac{2}{3}' + 26^{\circ} 40\frac{2}{3}' = 268^{\circ} 16\frac{1}{3}' = \text{XII Bhava}$

Example 25.—Mark the Bhava Sphutas in the Standard Horoscope?

		Bhava (House)	Spashta (Longitude)		
I	Lagna or the Thana Bhava	=	294 ^o	57'	0"
II	"	Dhana	328	16	20
III	"	Bhrathru	1	35	40
IV	"	Matru	34	55	0
V	"	Putra	61	35	40
VI	"	Satru	88	16	20
VII	"	Kalatra	114	57	0
VIII	"	Ayur	148	16	20
IX	"	Dharma	181	35	40
X	"	Karma	214	55	0
XI	"	Labha	241	35	40
XII	"	Vraya	268	16	20

89. Bhava Sandhis.—These are the junc-tional points of the two consecutive Bhavas. The potency of the Bhava will be at its full in the Bhavamadhyā and hence, it must begin somewhere and end somewhere. The influence of a planet will gradually rise when approaching Bhavamadhyā, while it gradually diminishes from Bhavamadhyā till it is practically nil at the Bhava Sandhi. The place or the point

where the influence of the Bhava begins is the Arambha-sandhi and the place where it stops is the Virama-sandhi. The arambha-sandhi may be termed as the first point of the house, and the virama-sandhi, the last point. For instance the arambha-sandhi of the 1st Bhava will be the end-point of the 12th Bhava. Similarly the virama-sandhi of the first Bhava will be the end-point of the Lagna and the arambha-sandhi of the second house and so on. In other words the Sandhi of a Bhava represents the beginning of the influence of one Bhava and the termination of the influence of the Bhava preceding it.

In order to know the exact amount of the influence that a planet exercises, as a result of its position in a particular Bhava, it becomes necessary to determine the Sandhis of the various Bhavas.

90. Determination of Bhava Sandhis.—
Add the longitudes of two consecutive Bhavas and divide the sum by 2. The result represents sandhi. For instance, in the Standard Horoscope adding the longitudes of first and second Bhavas and dividing the sum by 2, we get:—

$$\begin{array}{r}
 294^\circ 57' 0'' + 328^\circ 16' 20'' \\
 \hline
 2 \\
 = \frac{623^\circ 13' 20''}{2} = 311^\circ 36' 40''
 \end{array}$$

i.e., Aquarius $11^\circ 36' 40''$ is the sandhi-joint

between the I and II Houses: or the Viramasandhi of the I Bhava is $311^{\circ} 36' 40''$ and the Arambha-sandhi of the II Bhava is $311^{\circ} 36' 40''$. It will be sufficient if Sandhis of 6 Bhavas are determined as those of the rest could be obtained by adding 180° to each of them.

Example 26.—Find the Longitudes of the Arambha-sandhis of the twelve Bhavas in the Standard Horoscope ?

		Arambha-sandhi
I	$(268^{\circ} 16' 20'' + 294^{\circ} 57' 0'')$	$\div 2 = 281^{\circ} 36' 40''$
II	$(294 57 0 + 328 16 20)$	$\div 2 = 311 36 40$
III	$(328 16 20 + 1 35 40)$	$\div 2 = 344 56 0$
IV	$(1 35 40 + 34 55 0)$	$\div 2 = 18 15 20$
V	$(34 55 0 + 61 35 40)$	$\div 2 = 48 15 20$
VI	$(61 35 40 + 88 16 20)$	$\div 2 = 74 56 0$

The arambha, madhya and anthya of the Bhavas are thus situated :—

Bhava.	Arambha.	Madhya.	Anthya.
I	$281^{\circ} 36' 40''$	$294^{\circ} 57' 0''$	$311^{\circ} 36' 40''$
II	$311 36 40$	$328 16 20$	$344 56 0$
III	$344 56 0$	$1 35 40$	$18 15 20$
IV	$18 15 20$	$34 55 0$	$48 15 20$
V	$48 15 20$	$61 35 40$	$74 56 0$
VI	$74 56 0$	$88 16 20$	$101 36 40$
VII	$101 36 40$	$144 57 0$	$131 36 40$
VIII	$131 36 40$	$148 16 20$	$164 56 0$
IX	$164 56 0$	$181 35 40$	$198 15 20$
X	$198 15 20$	$214 55 0$	$228 15 20$
XI	$228 15 20$	$241 35 40$	$254 56 0$
XII	$254 56 0$	$268 16 20$	$281 36 40$

91. Poorva and Uttara Bhagas of Bhavas.—The poorva bhaga is that part of the Bhava which first rises and the uttara bhaga is

the part that next rises. They can be thus determined :—

Rule 1.—Poorva Bhaga of a Bhava = Long. of the Bhava Madhya — Long. of the Arambha-sandhi.

Rule 2.—Uttara Bhaga = Long. of Virama-sandhi—Long. of the Bhava Madhya.

Rule 3.—Length of each Bhava = Length of Purva Bhaga + Length of Uttara Bhaga.

Example 27.—Find the Poorva and the Uttara Bhagas and the length of each Bhava in the Standard Horoscope ?

Applying the above rules we get the following results :—

	Poorva Bhaga of the Bhava.	Uttara Bhaga of the Bhava.	Length of the Bhava.
I	13° 20' 23"	16° 39' 40"	30° 0' 0"
II	16 39 40	16 39 40	33 19 20
III	16 39 40	16 39 40	33 19 20
IV	16 39 40	13 20 20	30 0 0
V	13 20 20	13 20 20	26 40 40
VI	13 20 20	13 20 20	26 40 40
VII	13 20 20	16 39 40	30 0 0
VIII	16 39 40	16 39 40	33 19 20
IX	16 39 40	16 39 40	33 19 20
X	16 39 40	13 20 20	30 0 0
XI	13 20 20	13 20 20	26 40 40
XII	13 20 20	13 20 20	26 40 40
<hr/>		<hr/>	<hr/>
	180 0 0	180 0 0	360 0 0
<hr/>		<hr/>	<hr/>

CHAPTER XI.

CASTING THE HOROSCOPE ACCORDING TO THE WESTERN METHOD AND ITS REDUCTION TO THE HINDU

92. General Observations.—Hitherto we have exhaustively treated the processes involved in the act of casting a horoscope according to the Hindu method. Realising the fact that to a number of people who are anxious to apply the Hindu method of astrology, the Hindu almanacs will not be either accessible or intelligible, we have thought fit to include a chapter dealing with the method of computing the longitudes of planets, etc., according to the western method and their reduction to the Hindu. It must be borne in mind that unless one is unable to apply the Hindu method, one need not adopt the method chalked out in this chapter.

93. Hindu and Western Methods.—The Hindu method of casting a horoscope is always Sayana though finally it is reduced to the Nirayana for predictive purposes, so that, we want Nirayana Longitudes of planets and Bhavas, for analysing a horoscope according

to the rules given in books dealing with the *Phalit Bhaga* (judicial portion) of astrology.

The westerners base their calculations as well as predictions on the Shifting Zodiac, *i.e.*, the longitudes of planets, etc., given by them correspond to those of Sayana amongst us, so that by subtracting the ayanamsa from such positions, the Nirayana Longitudes can be obtained.

94. The Modern Ephemeris.—In order to cast a horoscope according to the western method, a reliable Ephemeris must be secured. An ephemeris will contain such information as the longitudes of planets, their latitudes and declinations and the Sidereal Time marked out for each day and calculated to Greenwich Mean Noon. In some, the Equation of Time referred to in the preceding chapters will also be given in addition to the daily motions of planets. A modern ephemeris roughly corresponds to a Hindu almanac with the difference that while the former is exclusively Sayana, among the latter, some are Sayana and besides, a Hindu *Panchanga*, contains much more useful information like *thithi*, *yoga*, *karana*, etc., whose importance, it is out of place to make mention of here, than an ephemeris.

95. Table of Houses.—These are absolutely necessary for ascertaining the ascendant

and other Houses knowing before hand, the Sidereal Time at the birth moment. The latitude of the birth place must be sought for in a "Table of Houses" and then the ascendant, etc., traced for the Sidereal Time. The cusps of the Houses of the western system correspond to the Sayana Bhava Madhyas of the Hindus and by the subtraction of the Ayanamsa, their Nirayana Bhava Madhyas can be obtained.

Cusp of the Western House—Ayanamsa = Nirayana Bhava Madhya of the Hindus.

96. Local Mean Time of Birth.—If the birth moment is marked in Standard Time convert it into Local Mean Time (L.M.T.) (see Article 66).

97. Greenwich Mean Time of Birth.—As the Sayana longitudes of planets are given for Greenwich Mean Time (G.M.T.) generally for Greenwich Mean Noon (G.M.N.), the L.M.T. of Birth must be converted into the corresponding G.M.T. of Birth thus:—

$$\text{G.M.T.} = \text{L.M.T.} + \frac{\text{Longitude of place}}{15^\circ}$$

- if place is E. of Greenwich.
- + if „ W. of „

Example 28.—Miss N. born on 3-5-1932 at 5.45 A.M. (L.M.T.) Lat. 13° N., Long. $75^\circ 0'$ E. Find the G.M.T. of Birth.

(This will be called the Illustrated Horoscope).

$$\begin{aligned} \text{G.M.T.} &= (5.45 \text{ A.M.}) - \frac{75}{60} \\ &= (5.45 \text{ A.M.}) - 5 \text{ A.M.} = 0.45 \text{ A.M.} \\ \therefore \text{G.M.T. of Birth} &= 0.45 \text{ A.M.} \end{aligned}$$

98. Greenwich Mean Time Interval of Birth.—As already observed above, the longitudes of planets will be given for Greenwich Mean Noon (sometimes for midnight also). In order to find out their positions at the moment of birth, we should ascertain the elapsed time rather than the interval between the G.M.N. and the G.M.T. If the G.M.T. of Birth falls after the noon (*i.e.*, G.M.N.) then take the interval between the two: if the G.M.T. of birth is before the noon, then take the interval between the preceding noon and G.M.T. of Birth. The result is Greenwich Mean Time interval of birth.

Example 29.—Find the G.M.T. interval of birth in the Illustrated Horoscope.

$$\begin{aligned} \text{The G.M.T. of Birth} &= 0.45 \text{ A.M.} \\ \therefore \text{Take preceding noon (noon of 2-5-1932)} \\ \therefore \text{G.M.T. interval of birth is } &12 \text{ h. } 45 \text{ m.} \end{aligned}$$

99. Daily Motions of Planets.—The celestial arc traversed by the planets in a day is their daily motion. Take the arc that each planet has traversed from the noon preceding birth to the noon succeeding birth.

Example 30—Find the daily motions of planets in the Illustrated Horoscope.

Referring to Raphaeil's Ephemeris for 1932, we get the following information :—

Planet		Long. on 3rd May at Noon.	Long. on 2nd May at Noon.	Daily motions of the planets.
Sun	(Taurus)	... 12° 49' 43"	11° 51' 32"	0° 58' 11"
Moon	(Aries)	... 18 19 17	6 31 20	11 47 57
Mars	(Taurus)	... 23 15 0	22 29 0	0 46 0
Mercury	(Aries)	... 17 13 0	16 33 0	0 40 0
Jupiter	(Leo)	... 13 33 0	13 29 0	0 4 0
Venus	(Gemini)	... 27 37 0	26 46 0	0 51 0
Saturn	(Aquarius)	4 39 0	4 38 0	0 1 0
Rahu	(Moon's ascending node)	(Pisces) ... 23 45 0	23 51 0 (1st May)	0 0 6 0 (in 2 days)

100. Hindu Nirayana Longitudes of Planets.—We know the daily movements of all the planets, *i.e.*, the arc they pass through in 24 hours. Now find by proportion or with the aid of Logarithmic tables, the arc covered by each of them in the G. M. T. interval of birth and add this to their respective longitudes at the noon previous to birth. The result would represent their exact Sayana positions at the birth moment. If a planet is in retrograde, instead of adding the arc traversed in a day, to its previous longitude, the arc must be subtracted from it. In case of Rahu, the arc must always be subtracted. In the case of the Sun and the Moon the arc must always be added. In the case of the other five planets, the arc is additive or subtractive according as

the planet is direct or retrograde. From the Sayana longitudes so obtained, subtract Ayanamsa for the year of birth (See Art. 49) and the Hindu Nirayana Longitudes of the planets are obtained.

Rule 1.—Arc traversed in G. M. T. interval of birth

$$= \frac{\text{Daily motion of the planet}}{24 \text{ hours}} \times \text{G.M.T. interval of birth.}$$

Rule 2.—Sayana Long. at birth=

- (a) Long. of planet at noon previous to birth + arc traversed in G.M.T. interval of birth
- + in case of Sun, Moon and other planets having direct motion, except Rahu
- in case of Retrograde planets and Rahu.
- (b) Rahu's Long. + 180° = Kethu's Long.

Rule 3.—Hindu Nirayana Long = Sayana Long —
• Ayanamsa.

Example 31.—Find the Hindu Nirayana Longitudes of planets in the Illustrated Horoscope?

G.M.T. interval of birth = 12 h. 45 m. = 12.75 h.

∴ arc traversed by each planet in 12 h. 45 m. =

Sun.	$\frac{58' 11'' \times 12.75}{24}$	=	$0^\circ 30' 55''$
Mars.	$\frac{46' 0'' \times 12.75}{24}$	=	0 24 26
Mercury	$\frac{40' 0'' \times 12.75}{24}$	=	0 21 15
Jupiter	$\frac{4' 0'' \times 12.75}{24}$	=	0 2 8
Venus	$\frac{51' 0'' \times 12.75}{24}$	=	0 27 9
Saturn	$\frac{1' 0'' \times 12.75}{24}$	=	0 0 32
Rahu	$\frac{3' 0'' \times 12.75}{24}$	=	0 1 17

• It is better to ascertain the arc traversed by the Moon by recourse to Logarithmic tables given at the end of the Ephemeris. If the reader cannot do this he can simply find the arc, as usual, by the rule of three.

Moon's daily motion = $11^\circ 47' 57'' = 11^\circ 48'$

G.M.T. interval of birth = 12 h. 45 m.

∴ Log. $11^\circ 48'$ = .3083

Log. 12 h. 45 m. = .2747

.5830

∴ Anti Log. of .5830 = $6^\circ 16'$

∴ Moon's motion in 12 h. 45 m. = $6^\circ 16'$

Applying Rule 2 (*a* and *b*) we get their Sayana Longitudes thus :—

Planet.	Long. on 2nd noon.	Arc covered in 12 h. 45 m.	Sayana Long. at Birth.
1. Sun ...	$41^\circ 51' 32''$ +	$0^\circ 30' 55''$ =	$42^\circ 22' 27''$
2. Moon ...	6 31 20 +	6 16 0 =	12 47 20
3. Mars ...	52 29 0 +	0 24 26 =	52 53 26
4. Mercury	16 33 0 +	0 21 15 =	16 54 15
5. Jupiter ...	133 29 0 +	0 2 8 =	133 31 8
6. Venus ...	86 46 0 +	0 27 9 =	87 13 9
7. Saturn ...	304 38 0 +	0 0 32 =	304 38 32
8. Rahu ...	353 51 0 —	0 1 17 =	353 49 43
9. Kethu ...	...	...	= 173 49 43

Applying Rule 3.—

Planet.	Sayana Long. of planet at birth	Ayanamsa	Its Nirayana Long.
1. Sun ...	$42^\circ 22' 27''$ —	$21^\circ 27' 41''$ =	$20^\circ 54' 46''$
2. Moon ...	12 47 20 —	20 27 41 =	350 19 39
3. Mars ...	52 53 26 —	21 27 41 =	31 25 45
4. Mercury	16 54 15 —	21 27 41 =	355 26 34
5. Jupiter ...	133 31 8 —	21 27 41 =	112 3 27
6. Venus ...	87 13 9 —	21 27 41 =	65 45 28
7. Saturn ...	304 38 32 —	21 27 41 =	283 10 31
8. Rahu ...	353 49 43 —	21 27 41 =	332 22 2
9. Kethu ...	173 49 43 —	21 27 41 =	132 22 2

Now we have obtained the positions of grahas; we shall proceed to find out the different Bhavas.

101. **The Sidereal Time at Birth**—This is very essential for finding out the ascendant and other houses. You will see the Sidereal Time marked for G. M. N. everyday in the first column of the Ephemeris, *i.e.*, next to week day. The Sidereal Time for birth must be obtained as follows:—

First ascertain the Sidereal Time at the previous Greenwich Mean Noon. From or to this deduct or add at the rate of 10 seconds for every one hour of longitude, this being the correction for the difference of time between place of birth and Greenwich. Deduct if the place of birth is East of Greenwich, add if it is West of Greenwich. The Sidereal Time for the previous Local Mean Noon is obtained. Now add to this the Mean Time interval (*i.e.*, the number of hours passed from previous local noon to birth) and also add 10 seconds per hour since noon as this represents the difference between the Sidereal Time and the Mean Time. Ex-punge multiples of 24 hours. The result represents the Sidereal Time at Birth.

Example 32.—Find the Sidereal Time at Birth in the Illustrated Horoscope?

L.M.T. of Birth	=	5.45 A.M.
Long. of Birth 75° E.	=	5 Hours in time.
		H. M. S.
Sidereal Time at the noon of 2nd May	...	2 40 45
<i>Less</i> correction for the difference of time between the place of birth (East of Greenwich) and Greenwich	...	0 0 50

∴ Sidereal Time at the previous Local Noon	...	2 39 55
Number of hours passed from previous noon to birth (<i>i.e.</i> , Mean Time interval)	...	17 45 0
Correction between Sidereal Time and Mean Time	...	0 2 ⁸ 57

∴ Sidereal Time at Birth	...	20 27 52

102. R.A.M.C. at Birth.—Convert Sidereal Time into arc. The result represents the R.A.M.C. at birth, *i.e.*, Sidereal Time $\times 15^{\circ}$ = R.A.M.C. at birth.

Example 33.—Find the R.A.M.C. at birth given Sidereal Time at birth as 20 h. 27 m. 52 s. in the Illustrated Horoscope:—

20 h.	=	$300^{\circ} 0' 0''$
27 m.	=	$6 45 0$
52 s.	=	$0 13 0$

∴ R.A.M.C. at birth	=	$306^{\circ} 58' 0''$

103. Sayana Longitudes of Angular Houses.—Since there is a slight difference

between the Hindu and western methods of computing the longitudes of the non-angular houses, we shall ascertain those of the angular houses from the Modern Table of Houses, reduce them into Nirayana ones and then find out the longitudes of the non-angular houses according to the rules described in Article 88.

Consider the "Table of Houses" for the latitude of the birth place ; if no Table of Houses for the birth place is available, then refer to that which is nearest to the latitude of birth. Find the nearest time corresponding to the Local Sidereal Time of Birth (under the column Sidereal Time). Next to that we see the cusp of the Tenth house ; mark its longitude ; trace further and you will see a column marked as "Ascend" ; mark its longitude also. Deduct from these two, the Ayanamsa. Their Nirayana Bhava Madhyas are obtained—i.e., the longitudes of Udaya Lagna (Ascendant) and the Upper Meridian (Madhya Lagna) are obtained. Adding 180° to each of these two, the Nirayana Asta Lagna (Western Horizon) and the Pathala Lagna (Lower Meridian) are obtained. Now apply the rules contained in Articles 87, 88, 89, 90 and 91. You have got the horoscope ready.

Example 34.—Find the Sayana Longitudes of the cusps of the ascendant and the 10th House in the illustrated horoscope and reduce them to those of the Nirayana ?

Sidereal Time at Birth = 20 h. 27 m. 52 s.

Birth place, 13° North Latitude.

∴ The Table of Houses for Madras, nearest to the birth latitude, must be consulted.

20 h. 25 m. 19 s. is the nearest to the Sidereal Time of Birth.

∴ Sayana Long. of cusp of ascend. = 12° 28' Taurus
= 42° 28'

∴ Sayana Long. of cusp of tenth-house = 4° Aquarius
or 304°

Sayana long of the cusp of the house.	Ayanamsa.	Nirayana long. of Bhava Madhya.
--	-----------	------------------------------------

∴ 42° 28' —	21° 27' 41" =	21° 0' 19"
304 0 —	21 27 41 =	282 32 19

∴ 21° 0' 19" + 180° = 201° 0' 19"

282 32 19 + 180 = 102 32 19

∴ Asta Lagna (W. Horizon) = 201° 0' 19"
Pathala Lagna (Lower Meridian) = 102 32 19

Example 35.—Applying the rules described in Articles 87, 88, 89, 90 and 91, find the Longitudes of Bhava Madhyas of the Non-angular Houses, Bhava-sandhis, Poorva and Uttara Bhagas of the Bhavas and the length of each Bhava in the Illustrated Horoscope and locate the planets in a map of the heavens.

P.S.—In considering the Longitudes of planets and Bhavas, omit less than half a minute of arc and consider more than half a minute as equal to one minute.

Bhava Madhyas of Non-angular Houses.

Arc *a* = 102° 32' 19" — 21° 0' 19" = 81° 32' 0"

Arc *b* = 201 0 19 — 102 32 19 = 98 28 0

Arc *c* = 282 32 19 — 201 0 19 = 81 32 0

Arc *d* = 381 0 19 — 282 32 19 = 98 28 0

Bhava (House)			Spashta (Longitude of Bhava Madhya).		
I	Thanu	...	21°	0'	19"
II	Dhana	...	48	10	59
III	Bhrathru	...	75	21	39
IV	Sukha or Mathru	...	102	32	19
V	Putra	...	135	31	39
VI	Satru	...	168	10	59
VII	Kalatra	...	201	0	19
VIII	Ayur	...	228	10	59
IX	Bhagya or Dharma	...	255	21	39
X	Karma	...	282	32	19
XI	Labha	...	315	31	39
XII	Vraya	...	348	10	59

(Less than 30" have been omitted; more than 30"
have been considered as 1').

Bhavasandhis.

Bhava.	Arambhasandhi.	Madhya.	Viramasandhi.
I	4° 35.5'	21° 0'	34° 35.5'
II	34 35.5	48 11	61 56.5
III	61 46.5	75 22	88 57
IV	88 57	102 32	118 57
V	118 57	135 22	151 46.5
VI	151 46.5	168 11	184 35.5
VII	184 35.5	201 0	214 35.5
VIII	214 35.5	228 11	214 46.5
IX	241 46.5	255 22	268 57
X	268 57	282 32	298 57
XI	298 57	315 22	331 46.5
XII	331 46.5	348 11	4 35.5

Poorva and Uttara Bhagas of Bhavas.

Bhava.	Poorva Bhaga.	Uttara Bhaga.	Length of Bhava
I	16° 24.5'	13° 35.5'	30° 0'
II	13 35.5	13 35.5	27 11
III	13 35.5	13 35	27 10.5
IV	13 35	16 25	30 0
V	16 25.5	16 24.5	32 49
VI	16 24.5	16 24.5	32 49

Rhava.	Poorva Bhaga.	Uttara Bhaga.	Length of Bhava.
VII	16 24.5	13 35.5	30 0
VIII	16 24.5	13 35.5	27 11
IX	13 35.5	13 35	27 10.5
X	13 34	16 25	30 0
XI	16 25	16 24.5	32 49.5
XII	16 24.5	16 24.5	32 49
	<hr/> 180 0	<hr/> 180 0	<hr/> 360 0

104. Rasi Kundali.—

☿ Mercury	♀ Sun Birth Ascdt.	♂ Mars	♊ Venus
~~			♃ Jupiter
MAP OF THE HEAVENS			
♄ Saturn			♂
♄	♏	♎	♃ Kethu

CHAPTER XII.

THE SHODASAVARGAS

105. **The Vargas.**—The Zodiac or the Bhachakra is composed of 360 degrees of the celestial space. 30 degrees constitute one sign of the zodiac. Each of such signs is further subdivided into a number of other divisions, *i.e.*, into certain kinds of divisions. These kinds of divisions are known as the Vargas. These are based on the assumption that planets get increase or decrease in their capacity to produce good or inflict bad, in a horoscope, according to their particular positions within a sign. They become highly potent by occupying certain kinds of divisions, owned by them, or by planets declared as their intimate friends, or by such divisions being their own places of exaltation or fall. These various relations, like elevation (Oochcha), fall (Neecha), etc., have been already discussed elsewhere.*

106. **The Shodasavargas.**—These kinds of divisions are really sixteen in number. But the number adopted by the different astrologers varies according to how they are used. For instance, for finding out the *Sthana Bala*

* For further information see my book "Graha and Bhava Balas".

(Positional strength) of a planet, the Sapta-Vargas are considered. For making predictions, the Shadvargas are employed, some consider Dasa-Vargas and so on, the choice often depending upon the prevailing custom. We shall, for purposes of determining the Sthana Bala of planets, go detailly into Sapta Vargas and scan through all the sixteen-vargas rather superficially.

107. **The Shadvargas.**—They are (1) Rasi, (2) Hora, (3) Drekkana, (4) Navamsa, (5) Dwadasamsa and (6) Trimsamsa.

108. **The Saptavargas.**—(1) Rasi, (2) Hora, (3) Drekkana, (4) Saptamsa, (5) Navamsa (6) Dwadasamsa and (7) Thrimamsa.

109. **The Dasavargas.**—(1) Rasi, (2) Hora, (3) Drekkana, (4) Chaturthamsa, (5) Panchamsa, (6) Shastamsa. (7) Sapthamsa, (8) Navamsa, (2) Dwadasamsa and (10) Thrimamsa.

110. **The Shodasavargas.**—(1) Rasi, (2) Hora, (3) Drekkana, (4) Chaturthamsa, (5) Panchamsa, (6) Shastamsa, (7) Sapthamsa, (8) Ashtamsa, (2) Navamsa, (10) Dasamsa. (11) Ekadasamsa, (12) Dwadasamsa, (13) Shodasamsa, (14) Thrimamsa, (15) Shashthiamsa and (16) Ghatikamsa.

We shall now describe the various vargas, and the methods of locating the planets in each one of them.

111. **Rasi.**—Rasi means sign. The 12 signs of the Zodiac are the 12 Rasis. The limits and the lordships of the various rasis are named in the second chapter.

Example. 36.—Find the Rasis of the different planets and the Lagna in the Standard Horoscope and the lords of such Rasis?

Planet	Its Long.	Rasi	Lord of the Rasi.
Ravi	... 179° 8'	Kanya	Budha
Chandra	... 312 8	Kumbha	Sani
Kuja	... 229 49	Vrischika	Angaraka
Budha	... 180 33	Tula	Sukra
Guru	... 83 35	Mithuna	Budha
Sukra	... 170 4	Kanya	Budha
Sani	... 124 51	Simha	Ravi
Rahu	... 233 23	Vrischika	Kuja
Kethu	... 53 23	Vrischika	Sukra
Lagna	... 294 57	Makara	Sun

112. **Hora.**— $2\frac{1}{2}$ Ghatis constitute 1 Hora. 15 degrees are equal to 1 hour in time so that, on the whole, there are 24 horas of 15° each in the entire zodiac. Each sign contains 2 horas, namely, the Surya Hora (Sun's) and the Chandra Hora (Moon's). In Oja Rasis or odd signs the first hora is governed by the Sun and the second by the Moon. In Yugma Rasis or even signs the ruler of the first hora is the Moon, and second hora is governed by the Sun. Odd signs are Mesha, Mithuna, Simha, etc. Even

signs are Kataka, Vrishabha, Kanya, etc., For instance, the first hora in Mesha is governed by the Sun, while the second is presided over by the Moon. Similarly so with reference to Mithuna, etc. In Vrishabha, Chandra presides over the first hora and the Sun over the next.

Example 37.—Find the Horas occupied by the planets, and the lords of such horas in the Standard Horoscope.

Planet	Its Long.	Nature of Rasi	Hora.	Its Lord.
Ravi	... 179° 8'	Yugma	Surya	Surya or Sun
Chandra	... 312 8	Oja	Chandra	Chandra
Kuja	... 229 49	Yugma	Surya	Surya
Budha	... 180 33	Oja	Ravi	Ravi
Guru	... 83 35	Oja	Chandra	Chandra
Sukra	... 170 4	Yugma	Surya	Surya
Sani	... 124 51	Oja	Surya	Surya
Lagna	... 294 57	Yugma	Surya	Surya

We shall omit Rahu and Kethu for the present, as they are considered Aprakashaka Grahas or shadowy planets and as they simply reflect the results of the lords of the houses which they occupy.

113. **Drekkana.**—The Zodiac is divided into 36 drekkanas so that each gets 10°. The Lord of the first drekkana in a rasi is the lord of the rasi itself, that of the second, the lord of 5th from it, that of the 3rd, the lord of the 9th from it.

Rasi.	Lord of its 1st Drekkana.	Lord of its 2nd Drekkana.	Lord of its 3rd Drekkana.
Mesh	...	Kuja	Surya
Vrishabha	...	Sukra	Budha
Mithuna	...	Budha	Sukra
Kataka	...	Chandra	Kuja
Simha	...	Surya	Guru
Kanya	...	Budha	Sani
Tula	...	Sukra	Sani
Vrischika	...	Kuja	Guru
Dhanus	...	Guru	Kuja
Makara	...	Sani	Sukra
Kumbha	...	Sani	Budha
Meena	...	Guru	Chandra

Example 38.—Find the various Drekkanas occupied by the planets and the lords of such Drekkanas in the Standard Horoscope.

Planet.	Its Long.	No. of Drekkana.	Its Lord.
Surya	...	179° 8'	3rd in Kanya
Chandra	...	312 8	2nd in Kumbha
Kuja	...	229 49	2nd in Vrischika
Budha	...	180 33	1st in Thula
Guru	...	83 35	3rd in Mithuna
Sukra	...	170 4	3rd in Kanya
Sani	...	124 51	1st in Simha
Lagna	...	294 57	3rd in Makara

114. Chaturthamsa.—When a sign is divided into four equal parts, each one is called a Chaturthamsa. The Zodiac contains 48 Chaturthamsas and each is equal to $\frac{90}{48}$ or $7^{\circ} 30'$ of the celestial space. The lord of the first Chaturthamsa is the lord of the Rasi itself; that of the second, the lord of the fourth from it, that of the third, the lord

of the seventh and that of the fourth, the lord of the 10th. Thus the lord of each Kendra Rasi (quadrant), will become the lord of each Chaturthamsa.

115. **Panchamsa.**—Each Panchamsa— $\frac{1}{8}$ of a sign — is 6° in extent, *i.e.*, the Zodiac is divided into 80 panchamsas. In odd signs the first panchamsa is governed by Mars; the second by Saturn; the third by Jupiter; the fourth by Mercury; and the fifth by Venus. The reverse holds good in even signs.

116. **Shastamsa.**—There are 72 shashtamsas in the whole of the Bhachakra. Each Shashtamsa is equal to five degrees and a Rasi is divided into 6 Shashtamsas. In odd signs the lords of the six Shashtamsas are the lords of the six houses from Aries and in even signs the lords of the six Shashtamsas are the lords of the six Rasis from Libra.

117. **Sapthamsa.**—When a sign is divided into seven equal divisions each is called a Sapthamsa and gets $\frac{30}{7} = 4^{\circ} 14' 17\frac{1}{7}''$ The Bhachakra is divided into 84 sapthamsas. In odd signs they are governed by the lords of the first seven Rasis and in even signs by the lords of the seventh and following signs.

Example 39.—Find the Sapthamsas the planets have

occupied, and the lords of such Sapthamsas in the Standard Horoscope?

Planet.	Its Long.	Odd or Even Rasi.	No. of the Sapthamsa.	Lord of Sapthamsa.
Surya ...	179° 8'	Even	7th	Budha
Chandra ...	312 8	Odd	3rd	Kuja
Kuja ...	229 49	Even	5th	Budha
Budha ...	180 33	Odd	1st	Sukra
Guru ...	83 35	Odd	6th	Kuja
Sukra ...	170 4	Even	5th	Chandra
Sani ...	124 5	Odd	1st	Surya
Lagna ...	294 57	Even	6th	Guru

118. **Ashtamsa.**—An ashtamsa measures $3^{\circ} 45'$ and the Bhachakra is divided into 96 ashtamsas and each Rasi, therefore, contains 8 compartments - Ashtamsas. In movable signs (Aries, Cancer, etc.), the lords of the 8 ashtamsas are the lords of the 8 signs from Aries. In Sthira Rasis or immovable signs (Taurus, Leo, etc.), the lords of the 8 ashtamsas are those of Leo and the succeeding signs. In Dwiswabhava Rasis, (common sign like Gemini, Virgo, etc.), the 8 Ashtamsas are governed by the lords of Dhanus and the next succeeding signs.

119. **Navamsa.**—This is the most important subdivision among the Hindus. The successful forecasts made by them have this system as the basis. This has been formulated in view of the relationship between the degrees of the ecliptic and the stellar points or Nakshatras. The Nakshatras are 27 in number

(Art. 10). Therefore each Nakshatra gets $13\frac{1}{3}$. Each Nakshatra is further subdivided into four padas or quarters, so that one pada is equal to $\frac{13\frac{1}{3}}{4} = 3\frac{1}{3}^{\circ}$ of the ecliptic arc. Similarly a sign is divided into nine equal parts and each is a Navamsa. The Bhachakra is divided into 108 navamsas and each navamsa corresponds to a *Nakshatra Pada*. Reference to the schedule of Nakshatras given in Article 10 will tell you that 4 quarters of Aswini, 4 of Bharani, and 1 of Krittika make up Mesha. By knowing the Nakshatra padas of Grahas we can readily locate them in their precise Navamsa Vargas.

Take Mesha and divide it into nine equal parts. The first part (Navamsa) is governed by the lord of Mesha, *viz.*, Kuja; the second by the lord of the second, *viz.*, Sukra; the third by Budha lord of the third; the fourth by the lord of the fourth, *viz.*, Chandra, and so on till the last or the ninth navamsa which is governed by Jupiter, lord of the ninth from Mesha. Now divide Vrishabha into nine equal parts. We have left counting of the navamsa at Dhanus, *viz.*, the ninth from Mesha. Therefore, the first navamsa of Taurus (or the 10th Navamsa from Mesha) is governed by the lord of the 10th from Mesha, *viz.*, lord of Makara—Sari;

the 2nd navamsa (in Vrishaba), by the lord

of the 11th from Mesha, *viz.*, Sani, the 3rd by the lord of the 12th, *viz.*, Guru, the 4th, 5th, 6th, 7th, 8th and 9th by Kuja, Sukra, Budha, Chandra, Ravi and Budha respectively. Then the first navamsa of Mithuna is ruled by the lord of the 7th from Aries, *viz.*, Sukra. The last navamsa of Gemini is governed by the lord of the ninth from Gemini, Mercury. Again the first of Cancer is governed by the lord of Cancer and the last navamsa of Cancer by the lord of the ninth from Cancer, *viz.*, Jupiter, so that the first navamsa in Leo is ruled by the lord of tenth from Cancer—Aries, *viz.*, Mars. It invariably follows, that for Mesha, Simha and Dhanus, Navamsas must be counted from Mesha to Dhanus; for Vrishabha, Kanya and Makara from Makara; for Mithuna, Thula and Kumbha from Thula and for Kataka, Vrischika and Meena from Kataka. Thus we see four distinct groups :—

- (a) Mesha, Simha, Dhanus — from Mesha.
- (b) Vrishabha, Makara, Kanya — from Makara.
- (c) Mithuna, Thula, Kumbha — from Thula.
- (d) Kataka, Vrischika, Meena — from Kataka.

Take for instance a planet whose longitude is $114^{\circ} 26' 15''$ or $24^{\circ} 26' 15''$ in Cancer. Note this belongs to group (d) so that the navamsas must be counted from Kataka. $24^{\circ} 26' 15'' \div 3\frac{1}{2} = 7$ and odd Navamsas. The planet has passed 7

navamsas in Cancer and is in the 8th. The 8th navamsa in Cancer is ruled by the lord of the 8th Rasi from Cancer, *viz.*, Aquarius—Saturn. Thus the planet is in Saturn's Navamsa.

In group (a) the lords of the nine navamsas will be the lords of Mesha and the succeeding signs. Similarly with reference to other groups, the Navamsas must be considered.

Example 40.—Find the Navamsas occupied by the planets and the Lagna, and the lords of such navamsas, in the Standard Horoscope.*

Planet.	Its Long.	No. of the Navamsa.	Its Lord.
Surya	179° 8'	9th in Kanya	Budha
Chandra	312 8	4th in Kumbha	Sani
Kuja	229 49	6th in Vrischika	Guru
Budha	180 33	1st in Thula	Sukra
Guru	83 35	8th in Mithuna	Sukra
Sukra	170 4	7th in Kanya	Sukra
Sani	124 51	2nd in Simha	Sukra
Lagna	294 57	8th in Makara	Ravi
Rahu	233 23	8th in Vrischika	Sani
Kethu	53 23	8th in Vrishabha	Ravi

120. Navamsas and Nakshatra Padas.—

Now that we have learnt, how to find, in which Navamsa a planet is situated, we can also readily find out the particular constellation and the particular pada the planet is in. For instance, take the Sun. He occupies the 9th navamsa in Kanya, *i.e.*, he is in the 9th

* Include Rahu and Kethu also.

pada of Kanya rasi. The schedule of constellations in Chapter II will tell you that the last three padas of Uttara Phalguni, Hasta and the first two padas of Chitta make up Kanya. See to which padam (Quarter) and nakshatram (Constellation) in Kanya, the 9th navamsa corresponds.

Kanya ...	Uttara	3	Padas.
	Hasta	4	"
	Chitta	2	"

Therefore, the last navamsa of Kanya corresponds to, rather is the same as, the last pada in Kanya, *i.e.*, the second of Chitta. Therefore you say that the Sun is in the second padam (Quarter) of the nakshatra (Constellation) Chitta. Ascertain for all the planets, the nakshatras and the padas corresponding to the navamsa positions.

Example 41.—Find the Nakshatra Padas occupied by the different planets and the Lagna (of course Bhava Madhya) in the Standard Horoscope.

Planet.	Rasi.	Navamsa.	Nakshatra.	Pada.
Ravi ...	Kanya	Kanya	—9th	Chitta 2
Chandra ...	Kumbha	Makara	—4th	Satabhisha 2
Kuja ...	Vrischika	Dhanus	—6th	Jyesta 1
Budha ...	Thula	Thula	—1st	Chitta 3
Guru ...	Mithuna	Vrishabha	—8th	Punarvasu 2
Sukra ...	Kanya	Kataka	—7th	Hasta 4
Sani ...	Simha	Vrishabha	—2nd	Makha 2
Lagna ...	Makara	Simha	—8th	Dhanista 1
Rahu ...	Vrischika	Kumbha	—8th	Jyesta 3
Kethu ...	Vrishabha	Simha	—8th	Mrigasira 1

***121. Navamsa Chakra.**—As navamsa combinations are too often referred to in Hindu predictive astrology, it would be better to mark the Grahas in a navamsa diagram for purposes of convenience and reference.

Example 42.—Locate the planets and Lagna of the Standard Horoscope in a Navamsa Kundali:—

★	♀	♂ Guru Sani	♊
♒ Rahu	NAVAMSA DIAGRAM		♉ Sukra
♑ Chandra			♌ Kethu Lagna
♁ Kuja	☿	♃ Budha	♍ Ravi

122. The Dasamsa.—When a sign is divided into ten equal parts, each is called a Dasamsa, meaning $\frac{1}{10}$ th of it. The whole Zodiac gets 120 Dasamsas of 3° each.

In odd signs the lords of the Dasamsas commence from the owner of the sign itself, while in even signs the rulers are the lords of the ninth* and the following houses respectively.

* See Sarwarthachintamani. English translation by Prof. Suryanarain Rao. Stanza 21, Chap. I.

123. **Ekadasamsa.** — Each Ekadasamsa measures $\frac{10}{11} = 2 \frac{8}{11}^\circ$ or the Bhachakra contains 132 Ekadasamsas. The lords of the 11 Ekadasamsas are the lords of the eleven signs from the 12th Rasi, counted backwards. Thus in Aries the first Ekadasamsa is ruled by Jupiter, the lord of the 12th from it and so on.

124. **Dwadasamsa.** — When a sign is divided into 12 equal parts each is called a dwadasamsa and measures $2\frac{1}{2}^\circ$. The Bhachakra can thus be said to contain $12 \times 12 = 144$ Dwadasamsas. The lords of the 12 Dwadasamsas in a sign are the lords of the 12 signs from it, *i.e.*, the lord of the first Dwadasamsa in Mesha is Kuja, that of the second Sukra and so on.

Example 43. — Find the Dwadasamsas occupied by the various planets and the Lagna in the Standard Horoscope and the lords of such Dwadasamsas.

Planet.	Its Long.	No. of Dwadasamsa	Lord of Dwadasamsa
Surya	... 179° 8'	12th in Kanya	Ravi
Chandra	... 312 8	5th in Kumbha	Budha
Kuja	... 229 49	8th in Vrischika	Budha
Budha	... 180 53	1st in Thula	Sukra
Guru	... 83 35	10th in Mithuna	Guru
Sukra	... 170 4	9th in Kanya	Sukra
Sani	... 124 51	2nd in Simha	Budha
Lagna	... 294 57	10th in Makara	Sukra

125. **Shodasamsa.** — When a sign is divided into 16 equal parts, each is called a Shodasamsa. The Bhachakra contains $16 \times 12 = 192$

Shodasamsas. In odd signs the lords of the first 12 signs govern them and the 13th, 14th, 15th and 16th parts are ruled by Sani, Budha, Kuja and Rayi. In even signs, the planets govern them in the reverse order.

126. **Thrimamsa.**—When a sign is divided into 30 equal parts each is called a Thrimamsa measuring 1° each. In odd signs, the Thrimamsas are governed thus :—

Mars	Saturn	Jupiter	Mercury	Venus
5	5	8	7	5 = 30.

In even signs the order must be reversed:—

Venus	Mercury	Jupiter	Saturn	Mars
5	7	8	5	5 = 30.

The above may be interpreted thus :—

In Mesha, Mithuna and such other Oja (odd) rasis, the first 5 Thrimamsas are governed by Mars, the second 5 by Saturn and so on. In Yugma Rasis (even signs) like Vrishabha, Kataka, etc., the first 5 are governed by Venus, the next 5 by Mercury, etc., as mentioned above.

Example 44.—Find the number of the Thrimamsas occupied by the planets and the Lagna in the Standard Horoscope and the lords of such Thrimamsas.

Planet.	Its Long.	No. of Thrimamsa.	Lord of Thrimamsa.
Surya	... 179 8	30th in even	Kuja
Chandra	... 311 30	12th in odd	Guru
Kuja	... 229 40	30th in even	Kuja
Budha	... 180 33	1st in odd	Kuja

Planet.	Its Long.	No. of Thrimsamsa.	Lord of Thrimsamsa.
Guru	... 83 35	24th in odd	Dudha
Sukra	... 170 4	21st in even	Sani
Sani	... 124 51	5th in odd	Kuja
Lagna	... 294 57	25th in even	Sani

127. **Shastiamsa.**—When a sign is divided into 60 equal parts, each is called a Shastiamsa. The Bhachakra contains $60 \times 12 = 720$ Shastiamsas. In case of odd signs, the sixty Shastiamsas are thus named :—

- (1) Ghora, (2) Rakshas, (3) Devabhaga,
- (4) Kubera, (5) Rakshogana, (6) Kin-nara, (7) Hrusta, (8) Kalagnana, (9) Garala, (10) Agnighatha, (11) Maya-msa, (12) Preta Puriha, (13) Apam-pathy, (14) Devaganasa, (15) Kala, (16) Sarpa, (17) Amritha, (18) Chan-dra, (19) Mridwamsa, (20) Koma-lamsa, (21) Padma, (22) Lakshmisa, (23) Vageesa, (24) Digambara, (25) Devamsa, (26) Indra, (27) Kalinasa, (28) Kshitiswara, (29) Kamalakara, (30) Mandatmaja, (31) Mrityu, (32) Kala, (33) Davagnya, (34) Chora, (35) Yamakantaka, (36) Satya, (36) Amrita, (38) Paripurna, (39) Vishapradagdha, (40) Kulanasa, (41) Mukhya (42) Vamsakshya, (43) Ootpatha, (44) Kalarupa, (45) Soumya, (46) Mrud-vamsa, (47) Susithala, (48) Damshtra,

(49) Seethabja, (50) Indumukha, (51) Poorna, (52) Kalagnya, (53) Dandayudha, (54) Nirmala, (55) Shuba, (56) Ashuba. (57) Atishuba, (58) Sudhapayodhi, (59) Dhyumani, (60) Indurekha.

In case of even signs, the order of naming must be reversed.

128. **Ghatikamsa.**—Each Rasi is divided into 150 ghatikamsas and each is again subdivided into two parts so that each Rasi is divided into three hundred equal parts, each amsa being equal to 6'. Chara, Sthira and Dviswabhava Rasis are considered in naming these Ghatikamsas, which it would not be worthwhile worrying with at this stage.

129. **General Remarks.**—We have said above that of all the Shodasavargas, it is the Saptavargas (108 Art.) alone that are of special importance to us as contributing to the positional strength (Sthanabala) of the different planets. The Saptavargas of planets, together with the lords of the Saptavargas can be tabulated as follows for our future use. Their importance and applicability has been elaborately explained in my book "*Graha and Bhava balas*".

Example 45.—Tabulate all the Saptavargas of the planets and the Lagna in the Standard Horoscope?

Table of Saptavargas

Planet	Its Symbol	Rasi	Hora	Drekkana	Sapthamsa	Navamsa	Dweda-samsa	Trimsamsa
Ravi ...	⊙	☿ ♀ Budha	♌ ⊖ Ravi	♌ ♀ Sukra	☿ ♀ Budha	☿ ♀ Budha	♌ ⊖ Ravi	☿ ♂ Kuja
Chandra	☽	☽ ♀ Sani	♉ ⊖ Chandra	♊ ♀ Budha	♋ ♂ Kuja	☿ ♀ Sani	♊ ♀ Budha	♀ ፻ Guru
Kuja ...	♂	☿ ♂ Kuja	♌ ⊖ Ravi	♓ ፻ Guru	☿ ♀ Budha	♀ ፻ Guru	♊ ♀ Budha	☿ ♂ Kuja
Budha ...	♀	♊ ♀ Sukra	♌ ⊖ Ravi	♊ ♀ Sukra	♊ ♀ Sukra	♊ ♀ Sukra	♊ ♀ Sukra	♋ ♂ Kuja
Guru ...	፻	♊ ♀ Budha	♉ ⊖ Chandra	☽ ♀ Sani	☿ ♂ Kuja	♌ ♀ Sukra	♓ ፻ Guru	♊ ♀ Budha
Sukra ...	♀	☿ ♀ Budha	♌ ⊖ Ravi	♌ ♀ Sukra	♉ ⊖ Chandra	♊ ♀ Sukra	♌ ♀ Sukra	☽ ♀ Sani
Sani ...	☿	♌ ⊖ Ravi	♌ ⊖ Ravi	♌ ⊖ Ravi	♌ ⊖ Ravi	♌ ♀ Sukra	☿ ♀ Budha	♋ ♂ Kuja
Lagna ...	Ascdt.	☿ ♀ Sani	♌ ⊖ Ravi	☿ ♀ Budha	♀ ፻ Guru	♌ ⊖ Ravi	♊ ♀ Sukra	☽ ♀ Sani

‘130. Interpretation of Saptavarga Table. Rows horizontal indicate the planets and rows longitudinal—the vargas. Take for instance, the row under the heading Drekkana. Tracing downwards we find the lords of Drekkanas occupied by each planet and the names of the Drekkanas. For instance take the Sun, and tracing horizontally we find under the column Rasi the symbols म and ४ . This means that the Sun is in Kanya (Virgo) Rasi having Budha as the lord. The table must be similarly interpreted with reference to other planets.

TABLE I.

Charakhandas.

Latitude.	Vighatis.	Vighatis.	Vighatis.
1°	2°10	1°68	0°73
2	4°20	3°36	1°40
3	6°30	5°04	2°10
4	8°40	6°72	2°80
5	10°50	8°40	3°50
6	12°60	10°08	4°20
7	14°70	11°76	4°90
8	16°90	13°52	5°63
9	19°00	15°20	6°33
10	21°20	16°96	7°06
11	23°30	18°64	7°76
12	25°50	20°40	8°50
13	27°00	21°70	8°80
14	29°90	23°92	9°96
15	32°10	25°68	10°70
16	34°40	27°52	11°46
17	36°60	29°28	12°20
18	39°00	31°20	13°00
19	41°30	33°04	13°76
20	43°70	34°96	14°56
21	46°00	36°80	15°33
22	48°50	38°80	16°16
23	50°90	40°72	16°96
24	53°40	42°72	17°80
25	55°90	44°72	18°63
26	58°50	46°80	19°50
27	61°10	48°88	20°36
28	63°80	51°04	21°26
29	66°50	53°20	22°16

Latitude.	Vighatis.	Vighatis.	Vighatis.
30°	69'30	55'44	23'10
31	72'10	57'68	24'33
32	75'00	60'00	25'00
33	77'90	62'32	25'96
34	80'90	64'72	26'96
35	84'00	67'20	28'00
36	87'10	69'68	29'03
37	90'40	72'32	30'13
38	93'70	74'96	31'23
39	97'20	77'76	32'4
40	100'60	80'48	33'53
41	104.30	83'44	34'73
42	108'00	86'40	36'00
43	111'90	89'52	37'30
44	115'80	92'64	38'60
45	120'00	96'00	40'00
46	124'20	99'36	41'40
47	128'70	102'96	42'90
48	133.30	106'64	44'43
49	138'00	110'40	46'00
50	143'00	114'40	47'66
51	148'20	118'56	49'40
52	153'50	122'83	51'17
53	159'20	127'36	53'06
54	165'20	132'16	55'06
55	171'30	137'04	57'10
56	177'90	142'32	59'30
57	184'60	147'84	61'60
58	192'00	153'60	64'00
59	199'70	159'76	66'56
60	207'80	166'24	69'26

TABLE II.

Terrestrial Latitudes and Longitudes

Name of Place.	Name of Country.	Latitude.	Longitude.
Aberdeen	Scotland	57° 10' N.	2° 5' W.
Abyssinia State	Africa	10 0 N.	40 0 E.
Abu Mount	India	24 30 N.	72 30 E.
Achin	Sumatra	5 0 N.	96 30 E.
Aden	Arabia	13 0 N.	45 0 E.
Adoni	India	15 38 N.	77 15 E.
Agin Court	France	50 29 N.	2 9 E.
Agra	India	27 10 N.	77 52 E.
Ahmedabad	India	23 2 N.	72 19 E.
Ahmednagar	India	19 1 N.	74 52 E.
Aix-la-Chapelle	Germany	50 46 N.	6 2 E.
Ajjacoo	France	41 55 N.	8 44 E.
Ajmer	India	26 32 N.	74 41 E.
Ajanta	India	20 31 N.	78 19 E.
Akyab	Burma	20 18 N.	92 45 E.
Alleppey	India	9 30 N.	76 13 E.
Alighar	India	27 52 N.	79 0 E.
Alaska	N. America	65 0 N.	150 0 W.
Alexandria	Egypt	31 12 N.	30 10 E.
Algiers	N. Africa	36 35 N.	25 45 E.
Allahabad	India	25 26 N.	81 48 E.
Almora	India	29 40 N.	79 40 E.
Alwar	India	27 40 N.	77 28 E.
Amarapur	Burma	21 50 N.	96 2 E.
Ambala	India	30 28 N.	76 50 E.
Amraoti	India (C.P.)	20 56 N.	78 0 E.
Amraoti	India (Deccan)	16 34 N.	80 25 E.
Amritsar	India	31 39 N.	74 47 E.
Amsterdam	Netherlands	52 22 N.	4 53 E.

Name of Place.	Name of Country.	Latitude.	Longitude.
Amona	Italy	43° 38' N.	13° 32' E.
Ananthapur	India	14 40 N.	77 39 E.
Andaman (Island)	India	12 0 N.	92 45 E.
Antwerp	Belgium	51 13 N.	4 24 E.
Anuradhapura	Ceylon	8 26 N.	80 20 E.
Arakan	Burma	20 46 N.	93 12 E.
Arabia (Country)	Asia	24 0 N.	48 0 E.
Aravali (Hills)	India	26 0 N.	74 0 E.
Arcot	India	12 55 N.	79 20 E.
Argentina (State)	S. America	36 0 S.	65 0 W.
Armenia (State)	Asia	40 30 N.	44 30 E.
Attock	India	33 55 N.	72 20 E.
Asia Minor	Asia	30 0 N.	32 0 E.
Assam (Prov.)	India	20 13 N.	75 40 E.
Athens	Greece	38 0 N.	23 45 E.
Atlanta	U. S. A.	33 53 N.	84 19 W.
Augsburg	Germany	48 18 N.	10 53 E.
Aurangabad	India	19 53 N.	75 22 E.
Austria (State)	Europe	47 0 N.	14 0 E.
Australia	...	25 0 S.	135 0 E.
Babylon	Mesopotamia	32 30 N.	44 35 E.
Bagdad	Mesopotamia	33 29 N.	44 31 E.
Baekergang	India	22 36 N.	90 20 E.
Baikul	India	12 22 N.	75 3 E.
Balasore	India	21 31 N.	87 0 E.
Balsar	India	20 35 N.	73 5 E.
Baltic Sea	Europe	57 0 N.	18 0 E.
Baltimore	Ireland	51 28 N.	9 19 W.
Baltimore	U. S. A.	39 35 N.	76 36 W.
Baluchistan (State)	Asia	28 0 N.	65 0 E.
Banavasi	India	14 34 N.	75 5 E.
Bavanahotte	India	22 18 N.	86 10 E.

Name of Place.	Name of Country.	Latitude.	Longitude.
Bangalore	India	13° 0' N.	77° 35' E.
Bangkok	Siam	14 0 N.	96 15 E.
Bareilly	India	28 26 N.	79 25 E.
Burdwan	India	23 14 N.	87 55 E.
Barbados	W. Indies	13 40 N.	59 50 W.
Baroda	India	22 20 N.	73 0 E.
Batavia	Java	6 0 S.	106 58 E.
Bath	England	51 22 N.	2 23 W.
Bavaria (State)	Germany	48 48 N.	12 0 E.
Belgaum	India	15 51 N.	74 30 E.
Belgium (State)	Europe	51 0 N.	4 30 E.
Belgrade	Yugoslavia	44 57 N.	20 37 E.
Bellavi	India	15 11 N.	76 55 E.
Belur	India	12 55 N.	76 35 E.
Benares	India	25 20 N.	83 1 E.
Bengal (Prov.)	India	24 0 N.	87 30 E.
Berar (Prov.)	India	20 35 N.	77 0 E.
Barbara	(Brit. Somili	10 26 N.	46 0 E.
land)			
Berhampur (Ganjam)	India	19 20 N.	84 55 E.
Berhampur (Bengal)	India	24 6 N.	88 20 E.
Bezwada	India	16 40 N.	81 0 E.
Berlin	Germany	52 51 N.	13 24 E.
Bethleholm	Palestine	31 41 N.	35 15 E.
Bhagalpur	India	25 20 N.	87 0 E.
Bhopal	India	23 15 N.	77 23 E.
Bhutan (State)	Asia	27 30 N.	90 30 E.
Bharatpur	India	27 28 N.	77 10 E.
Bhgoj	India	23 12 N.	68 2 E.
Bikaner	India	28 0 N.	73 22 E.
Bidar	India	17 53 N.	77 50 E.

Name of Place.	Name of Country.	Latitude.	Longitude.
Bijnour	India	29° 26' N.	78° 10' E.
Bijapur	India	16 50 N.	75 47 E.
Bismark	U. S. A.	46 50 N.	100 50 W.
Bombay *	India	18 52 N.	72 35 E.
Boordere	India	25 25 N.	76 0 E.
Boston	England	53 0 N.	0 2 W
Brindisi	Italy	40 39 N.	17 56 E.
Brunswick	Germany	52 15 N.	10 22 E.
Bucharest	Rumania	44 25 N.	26 2 E.
Bushire	Persia	29 0 N.	50 50 E.
Cairo	Egypt	30 2 N.	31 40 E.
Calais	France	50 57 N.	1 51 E.
Calcutta	India	22 40 N.	88 30 E.
Calicut	India	11 15 N.	75 51 E.
Cambridge	England	52 12 N.	0 8 E.
Canterbury	England	51 16 N.	1 4 E.
Canton	China	23 25 N.	113 32 E.
Cape Town	C. of G. Hope	33 59 S.	18 25 E.
Chandranagore	India	22 50 N.	88 20 E.
Cawnpore	India	26 37 N.	80 10 E.
Charleston	United States	32 54 N.	80 0 W
Chicago	United States	41 50 N.	87 35 W
Chota Nagpur	India	23 0 N.	83 30 E.
Cochin	India	9 43 N.	76 13 E.
Cologne	Germany	50 56 N.	6 58 E.
Colombo	Ceylon	7 0 N.	79 45 E.
Constantinople.	Thrace	41 1 N.	28 55 E.
Copenhagen	Denmark	55 40 N.	12 34 E.
Corsica, I.	France	42 10 N.	9 0 E.
Costa Rica	Cent. Amer...	10 0 N.	84 0 W
Croydon	England	51 22 N.	0 6 W
Croydon	Queensland	18 10 S.	142 0 E.
Cutch	India	23 30 N.	70 0 E.

Name of Place.	Name of Country.	Latitude.	Longitude.
Dacca	India	23° 40' N.	90° 30' E.
Dakota N. St....	U. S. A.	47 0 N.	100 0 W.
Damascus	Syria	33 33 N.	36 18 E.
Darjeeling	India	27 5 N.	88 6 E.
Dartmoor	England	50 38 N.	3 58 W.
Delhi	India	28 58 N.	77 0 E.
Derby	England	52 50 N.	1 28 W.
Devonport	England	50 22 N.	4 12 W.
Dublin	Ireland	53 23 N.	6 15 W.
Dunkirk	France	51 3 N.	2 22 E.
Durban	S. Africa	29 58 S.	30 57 E.
East London	C. Gd. Hope	32 58 S.	27 52 E.
Ellichpur	India	21 12 N.	77 8 E.
Emden	Germany	53 22 N.	7 13 E.
Florence	Italy	43 47 N.	11 20 E.
Fyzabad	India	26 44 N.	82 9 E.
Gaya	India	24 45 N.	85 5 E.
Genoa	Italy	44 25 N.	8 59 E.
Ghazni	Afghanistan	33 37 N.	66 0 E.
Gibraltar	Spain	36 7 N.	5 21 W.
Glasgow	Scotland	55 51 N.	4 16 W.
Goa	India	15 30 N.	73 40 E.
Golconda	India	17 30 N.	78 2 E.
Greenwich	England	51 29 N.	0 0 E.
Gwalior	India	26 22 N.	78 2 E.
Hague	Netherlands	52 4 N.	4 18 E.
Halifax	England	53 43 N.	1 52 W.
Hong-kong	China	22 16 N.	114 9 E.
Hyderabad	India	17 29 N.	78 30 E.
Hyderabad Sind	India	25 30 N.	68 34 E.
Jaipûr	India	27 4 N.	76 0 E.
Jerusalem	Palestine	31 45 N.	35 17 E.
Jodhpur	India	26 26 N.	72 58 E.

Name of Place.	Name of Country.	Latitude.	Longitude.
Jubbulpore	India	23° 12' N.	79° 59' E.
Juggernaut	India	19 59 N.	86 2 E.
Kansas City	U. S. A.	39 3 N.	94 39 W.
Karachi	India	25 0 N.	67 3 E.
Karikal	India	11 0 N.	79 39 E.
Kobe	Japan	35 0 N.	135 0 E.
Kolhapur	India	16 40 N.	74 18 E.
Kumbhakonam	India	11 0 N.	78 40 E.
Lahore	India	31 39 N.	74 23 E.
Lancaster	England	54 3 N.	2 48 W.
Lashkar	India	26 0 N.	77 0 E.
Leipzig	Germany	51 20 N.	12 21 E.
London	Canada	42 55 N.	81 11 W.
London	England	51 30 N.	0 5 W.
Los Angeles	U. S. A.	34 20 N.	118 45 W.
Madras	India	13 4 N.	80 4 E.
Madrid	Spain	40 25 N.	3 40' W.
Madura	India	9 50 N.	78 15 E.
Mahe	India	11 33 N.	75 35 E.
Mandalay	Burma	22 0 N.	96 15 E.
Manila	Philippines	14 58 N.	121 0 E.
Mantua	Italy	45 10 N.	10 48 E.
Masulipatam	India	16 15 N.	81 12 E.
Mecca	Arabia	21 20 N.	40 20 E.
Moscow	Russia	55 40 N.	37 40 E.
Multan	India	30 12 N.	71 31 E.
Murshidabad	India	24 2 N.	88 0 E.
Mysore	India	12 0 N.	76 38 E.
Naples	Italy	40 52 N.	14 13 E.
Natal	South Africa	29 0 S.	30 30 E.
New York	United States	41 0 N.	73 55 W.
Nilgiri Hills	India	11 15 N.	76 30 E.
Niniveh	Mesopotamia	36 25 N.	43 31 E.

Name of Place.	Name of Country.	Latitude.	Longitude.
Olympia	Greece	37° 40' N.	21° 20' E.
Ottawa	Canada	45 12 N.	75° 52 W.
Paris	France	48 50 N.	2 21 E.
Poona	India	18 32 N.	73 53 E.
Prestonpans	Scotland	55 58 N.	2 58 W.
Puri	India	19 59 N.	86 2 E.
Quebec	Canada	47 0 N.	71 0 W.
Quetta	India	30 12 N.	67 30 E.
Rio de Janeiro.	Brazil	22 50 S.	43 44 W.
Saar, R.	Germany	49 28 N.	6 45 E.
Salt Lake City	U.S.A.	40 55 N.	112 0 W.
San Francisco.	U.S.A.	38 0 N.	122 24 W.
Seringapatam	India	12 13 N.	76 40 E.
Shanghai	China	31 28 N.	121 28 E.
Sheffield	England	53 23 N.	1 27 W.
Shillong	India	25 31 N.	91 58 E.
Srinagar	India	34 14 N.	74 50 E.
Surat	India	21 2 N.	72 50 E.
Taranto	Italy	40 28 N.	17 13 E.
Udaipur	India	24 38 N.	73 35 E.
Waterloo	Belgium	50 44 N.	4 23 E.

TABLE III.

Equation of Time

Date.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
	M.	M.	M.	M.	M.	M.	M.	M.	M.	M.	M.	M.
1.	+	3	+	14	+	13	+	4	—	3	—	2
2.		4	14	12	4	3	2	4	6	0	10	16
3.		4	14	12	4	3	2	4	6	—	11	16
4.		5	14	12	3	3	2	4	6	1	11	16
5.		5	14	12	3	3	2	4	6	1	11	16
6.		6	14	12	3	3	2	4	6	1	12	16
7.		6	14	12	2	3	1	5	6	1	12	16
8.		7	14	11	2	4	1	5	6	2	12	16
9.		7	14	11	2	4	1	5	5	2	13	16
10.		7	14	11	2	4	1	5	5	3	13	16
11.		8	14	10	1	4	1	5	5	3	13	16
12.		8	14	10	1	4	1	5	5	3	13	16
13.		9	14	10	1	4	0	5	5	4	14	16
14.		9	14	10	0	4	0	6	5	4	14	16
15.		9	14	9	0	4	0	6	4	5	14	15
16.		10	14	9	0	4	0	6	4	5	14	15
17.		10	14	9	0	4	0	6	4	5	14	15
18.		10	14	8	0	4	+ 1	6	4	6	15	15
19.		11	14	8	— 1	4	1	6	4	6	15	15
20.		11	14	8	1	4	1	6	3	6	15	14
21.		11	14	8	1	4	1	6	3	7	15	14
22.		12	14	7	1	4	2	6	3	7	15	14
23.		12	14	7	2	3	2	6	3	7	16	14
24.		12	13	7	2	3	2	6	2	8	16	13
25.		12	13	7	2	3	2	6	2	8	16	13
26.		13	13	6	2	3	2	6	2	8	16	13
27.		13	13	6	2	3	3	6	2	9	16	13
28.		13	13	5	2	3	3	6	1	9	16	12
29.		13	...	5	3	3	3	6	1	9	16	12
30.		13	...	5	3	3	3	6	1	10	16	12
31.		13	...	4	...	3	...	6	0	...	16	...

TABLE IV.

Table of Standard Times

+ Fast of Greenwich Mean Time
 — Slow of Greenwich Mean Time

(e.g. If it is 12 noon at Greenwich, it will be 5-30 p.m. Indian Standard Time and 9 a.m. Eastern Brazil Standard Time and so on.)

			H.	M.	
India	...	...	5	30	+
Mid-European Zone— <i>i.e.</i> , Norway, Sweden, Denmark, Germany, Poland, Albania, Austria Hungary, Czechoslovakia, Italy, Malta	...	...	1	0	+
British Isles ^x and all European Countries					
West of Mid-European Zone	...	...	0	0	
Holland	...	...	0	20	+
Iceland	...	...	1	0	+
Palestine, Syria, Egypt, South Africa, Finland ^y and all other European Countries East the Mid-European Zone	...	...	2	0	+
New Zealand ^z	...	...	11	30	+
Japan, Korea	...	...	9	0	+
Siberia (97° 30' E. to 112° 30' E.)	...	...	8	0	+
Hong Kong	...	...	8	0	+
Uganda, Kenya Colony	...	...	2	30	+

^x = From April 22nd to October 7th difference + 1 h. 0 m.
^y = From June 20th to September 30th difference + 3 h. 0 m.
^z = From 2nd Sunday in October to 3rd Sunday in March + 12 h. 0 m.

		H.	M.	
Eastern Brazil	...	...	3	0
British Columbia, California, Washington		8	0	—
Mountain States of U.S.A.	...	7	0	—
Uruguay	...	3	30	—
New Foundland*	...	3	31	—
Canada (68° W. to 88° long. W.)	...	5	0	—
Eastern States of U.S.A.	...	5	0	—
Chile, Peru	...	5	0	—
Canada (88° W. to 103° W. long.)	...	6	0	—
Canada (103° W. to B. C. Boundary)	...	7	0	—
Central States of U.S.A.	...	6	0	—

An Index of Technical Terms.

Adi	First
Adhikamasa	Intercalary month.
Ahas	Diurnal duration.
Akshamsa	Terrestrial Latitude.
Angaraka	Mars.
Antya	Last.
Apamandala	Ecliptic.
Apasavya	Sinistral.
Apoklima	Succedent house.
Aprakashaka grahas	Shadowy planets.
Arambha	Beginning.
Arambha-sandhi	The starting point.
Ashtamsa	$\frac{1}{8}$ dn. of a sign.
Ashuddha rasi	The sign that cannot be subtracted.
Asta	Combustion.
Asta Lagna	Descendant.
Asu	Equivalent to 4 seconds of Sidereal
Athichara	Acceleration. [Time.]
Ayanamsa	Precessional distance.
Ayu	Longevity.
Ayurbhava	Eighth house.
Bhachakra	Zodiac.
Bhagana	Revolution of planets.
Bhaskaracharya	A great Hindu Astronomer.
Bhava	House.
Bhavachakra	Table of Houses.
Bhava madhya	Mid-point of the house.
Bhava-sandhi	Cusp of the house.
Bhava sphuta	Determining longitudes of houses.
Bhogya	To pass, e.g., time to pass.
Bhogyamsas	Arc to gain.

Bhr̄atru	Brother.
Bhratrubhava	Third house.
Bhuja	Distance from the nearest Equinoctial.
Bhuktha	Gained, <i>e.g.</i> , Time gained.
Bhukthamsas	Arc gained.
Brahmana	Planetary Rotation.
Brihat Jataka	A work on Horoscopy by Varahamihira
Budha	Mercury.
Chakra	Diagram, map.
Chandra	The Moon.
Chandramana	Lunar month.
Chara	Variable.
Charakhanda	Ascensional difference.
Chara rasis	Movable signs.
Chaturthamsa	$\frac{1}{4}$ dn. of a sign.
Dakshina	South.
Dakshina gola	South (celestial) hemisphere; 180° to
Dasamabhava	Mid-heaven. $[360^\circ]$ of the zodiac.
Dasamsa	$\frac{1}{10}$ dn. of a sign.
Dasavargas	Ten kinds of division: <i>e.g.</i> , of a sign.
Dhanabhava	Second house.
Dhanas	Sagittarius.
Dharmabhava	Ninth house.
Dhruva	Time of right ascension.
Dina	Day, diurnal duration.
Dinardha	Half diurnal duration.
Drekkana	$\frac{1}{3}$ dn. of a sign.
Dwadasamsa	$\frac{1}{12}$ " "
Dwiswabhava rasis	Common signs.
Ekadasamsa	$\frac{1}{11}$ dn. of a sign.

Ghati	Equivalent to 24 minutes of English
Ghatikamsa	$\frac{1}{10}$ dn. of a sign. [Time.]
Gola	Hemisphere.
Graha	Planet.
Graha Sphuta	Determining planetary longitudes.
Guru	Jupiter.
Hora	$\frac{1}{2}$ dn. of a sign.
Ishtakala	The given time.
Jagatchakshu	The Sun.
Kalatra	Wife.
Kalatrabhava	Seventh house.
Kalidasa	A great Indian Dramatist.
Kalpa	4,320,000,000 Sidereal years.
Kanya	Virgo.
Karaka	Promoter.
Karana	Half a lunar day.
Karma	Profession.
Karma bhava	Tenth-house.
Kataka	Cancer.
Kendra	Quadrant.
Kendra bhava	Angular house.
Kethu	Dragon's tail.
Khanda	Division or Section.
Kshepa	Celestial Latitude.
Kranti	Declination.
Kuja	Mars
Kumbha	Aquarius.
Kundali	Diagram, map.
Labha bhava	Eleventh house.

Lagna	Ascendant.
Lagna Sphuta	Finding Longitude of Ascendant.
Lipta	A unit of measure of Time or Arc.
Madhya	Middle.
Madhya Lagna	Mid-heaven.
Maharishis	Great Sages of India.
Makara	Capricorn.
Mandochcha	A celestial force.
Mathamaha	Maternal relations.
Mathru	Mother.
Meena	Pisces.
Mesha	Aries.
Mithuna	Gemini.
Mitra	Friend.
Moolathrikonas	Positions similar to those of exaltation.
Nadi vritta	Celestial equator.
Naisargika	Natural.
Nakshatra	Constellation.
Nakshatra Dina	Sidereal day.
Natha	Meridian-distance.
Navamsa	$\frac{1}{9}$ dn. of a sign.
Nirayana	Ex-precession.
Oja Rasis	Odd signs.
Oochcha	Exaltation.
Oopachayas	3, 6, 10 and 11 houses.
Pada	Quarter.
Panapara	Succedent house.
Panchamsa	$\frac{1}{5}$ dn. of a sign.
Panchanga	Almanac.
Panchasiddhantika	A Hindu Astronomical work.

Para	A unit of measure of Arc or Time.
Paratpara	Do
Paschad	Western.
Patha	A celestial force.
Pathala Lagna	Lower meridian.
Phalit bhaga	Judicial or predictive portion.
Pithamaha	Paternal relations.
Pithru	Father.
Poorvabhaga	Eastern or the first part.
Prag	Eastern.
Prarupa	A unit of measure of Arc or Time.
Prustodaya	Rising by hinder part : e.g., signs.
Putra	Children.
Putra bhava	Fifth house.
Rahu	Dragon's head.
Rasathala Lagna	Lower meridian.
Rasi	A zodiacal sign.
Rasi chakra	Zodiacal Diagram
Rasimana	Time of oblique ascension.
Rasi kundali	Zodiacal Diagram
Sama	Neutral.
Sandhi	Junctional point.
Sani	Saturn.
Saptha vargas	Seven kinds of division.
Satru	Enemy.
Satru bhava	Sixth house.
Sauramana	Solar month.
Savana Dina	Apparent solar day.
Savya	Dextral.
Sayana	With Precession.
Seegrochcha	A celestial force.
Shadvargas	Six kinds of division.

Shashtamsa	$\frac{1}{6}$ dn. of a sign.
Shashtiyamsa	$\frac{1}{10}$ dn. of a sign.
Shodasamsa	$\frac{1}{18}$ dn. of a sign.
Simha	Leo
Sirodaya*	Rising by the head : <i>e.g.</i> , signs.
Spashta	Planetary or house longitude.
Sthanabala	Positional strength.
Sthira rasis	Fixed signs.
Sukha bhava	Fourth house.
Sukra	Venus.
Sunya	Zero.
Surya	Sun.
Surya siddhanta	A Hindu Astronomical work.
Suryodayadi Jana-nakala ghatikaha	Ghatis elapsed from sunrise to birth.
Tatkalika	Temporary.
Tatpara	A unit of measure of Arc or Time.
Thanubhava	First house.
Thithi	Luni-Solar day.
Thrimamsa	$\frac{1}{10}$ dn. of a sign.
Thula	Libra.
Thrikona	Trine.
Ubbayodaya	Rising both by head and hinder part :
Udaya	Rising. [e.g., signs.]
Udaya Lagna	Ascendant.
Unnatha	30 ghatis diminished by Natha.
Uttara	North.
Uttarabhaga	Second part.
Uttara Gola	North (celestial) hemisphere 0° to 180° of the zodiac.
Vakra	Retrograde.
Varahamihira	A great Indian Writer.

Varga	Manner of division.	[Time.
Vighati	Equivalent to 24 seconds of English	
Vilipta	A unit of measure of Arc or Time.	
Virama sandhi	End-point.	
Virupa	A unit of measure of Arc or Time.	
Vishavarekha	Terrestrial equator.	
Vrayabhava	Twelfth house.	
Vrischika	Scorpio.	
Vrishabha	Taurus.	
Yugma Rasis	Even signs.	

ERRATA

Page.	Line.	Incorrect.	Correct.
3	14	<i>For</i> "Later Writers"	<i>Read</i> "Writers"
3	25	," "axis"	," "axes"
11	24	," "art. 25"	<i>Insert</i> "art. 25 a"
30	17	," "where"	<i>Read</i> "when"
35	17	," "27 = the required quantity"	"27: the required quantity"
	*		
36	10	," "21° 27' 31""	"21° 27' 41""
57	16	," "on"	"in"
80	1	," "Raphaeil's"	"Raphael's"
90	7	," "detailly"	"in detail"
91	21	," "Sun"	"Sani"
111	19	," "Brit. Somililand"	"Brit. Somaliland".

